Phenomenology

Basing Knowledge on Appearance

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CreateSpace Edition, 2014.

First Published 2003.
Expanded Edition, 2005. Small revisions, 2009.
By Avi Sion in Geneva, Switzerland.

Library Cataloguing Information:

Sion, Avi.
Phenomenology: Basing Knowledge on Appearance.

No Index. No Bibliography.

ISBN 978-1495917592

ABSTRACT

Phenomenology is the study of appearance as such. It is a branch of both Ontology and Epistemology, since appearing is being known.

By an 'appearance' is meant any existent which impinges on consciousness, anything cognized, irrespective of any judgment as to whether it be 'real' or 'illusory.' The evaluation of a particular appearance as a reality or an illusion is a complex process, involving inductive and deductive logical principles and activities. Opinion has to earn the status of strict knowledge.

Knowledge develops from appearances, which may be: (a) objects of perception, i.e. concrete phenomena in the physical or mental domains; (b) objects of intuition, i.e. one's subjective self, cognitions, volitions and valuations (non-phenomenal concretes); and/or (c) objects of conception, i.e. simple or complex abstracts of preceding appearances. Abstraction relies on apprehensions of sameness and difference between appearances (including received or projected appearances, and projected negations of appearances). Coherence in knowledge (perceptual, intuitive and conceptual) is maintained by apprehensions of compatibility or incompatibility.

Words facilitate our construction of conceptual knowledge, thanks to their intentionality. The abstract

concepts most words intend are common characters or behaviors of particulars (concrete material, mental or subjective experiences). Granting everything in the world is reducible to waves, ‘universals’ would be equalities or proportionalities in the measures of the features, motions and interrelations of particular waves. Such a theory of universals would elucidate sensation and memory.

In attempting to retrace the development of conceptual knowledge from experience, we may refer to certain major organizing principles. It is also important to keep track of the order of things in such development, interrelating specific concepts and specific experiences. By proposing a precise sequence of events, we avoid certain logical fallacies and are challenged to try and answer certain crucial questions in more detail.

Many more topics are discussed in the present collection of essays, including selfhood, adduction and other logical issues, the status of mathematical concepts and theology.

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When wind moves through emptiness,
nothing really moves.

The Flower Garland Sutra

1. WHAT, WHY AND HOW

1. Phenomenology

Phenomenology may be defined as the study of appearances as such. By an 'appearance' is meant any existent which impinges on consciousness, anything cognized, irrespective of any judgment as to whether it be 'real' or 'illusory.' The evaluation of a particular appearance (an existent within the field of consciousness) as an illusion (existing *only in* consciousness) or a reality (existing *not merely in* consciousness, but also before it, after it, without it or beyond its range) is a complex process, involving inductive and deductive logical principles and activities. Opinion has to earn the status of strict knowledge. To begin with, appearance must be taken neutrally, at face value, as the common ground of reality and illusion (i.e. one of a triad).

> An appearance *is* whatever it *seems to be*. At this level of consideration, the verbs 'to seem' and 'to be' are one and the same. It is only at the next level, where an assessment of status is involved, that they have to be separated.

Since appearing is being known, phenomenology can be regarded as a branch of both Ontology (the study of being as such; or more restrictively, of real being) and Epistemology (the study of knowledge as such; or more

restrictively, of true knowledge). Phenomenology differs from ontology in being less presumptive as to the nature or status of the object dealt with, and it is for this reason a study essential to epistemology. The basic insight or premise of phenomenology is that knowledge develops from neutral appearance. The common-sense view of knowledge would seem to be that knowledge develops from data considered *at the outset* as 'sensory,' but as we shall see this view involves logical difficulties. The phenomenological approach is an attempt to overcome these difficulties, and propose a more coherent order of development.

> As I have shown in my work *Future Logic*, no item of apparent knowledge, not even a percept, is ever immediately and definitively 'true' all by itself. An item may initially *seem* to be true, or contain some truth; but it is only in relation to all other items, which likewise *seem* to be true, that the judgment as to whether it is *really* or entirely true can be made. Even the various criteria and tests involved in such terminal judgments are themselves to start with merely seemingly true. The science of phenomenology is built on the same basic insight.

In this volume, we shall understand the term 'appearance' very broadly as including: a) objects of perception, i.e. concrete phenomena in the physical or mental domains; (b) objects of intuition, i.e. one's subjective self, cognitions, volitions and valuations (non-

phenomenal concretes); and/or (c) objects of conception, i.e. simple or complex abstracts of preceding appearances. Abstraction relies on apprehensions of sameness and difference between appearances (including received or projected appearances, and projected negations of appearances). Abstracts are firstly simply summaries of information, and at a later stage more complex hypothetical entities. Coherence in knowledge (perceptual, intuitive and conceptual) is maintained by apprehensions of compatibility or incompatibility.

> With regard to terminology, the reader is advised to keep in mind that in philosophy, and in this particular philosophical treatise, we use words somewhat differently or more specifically than in common parlance. Contrary to the impression given by the term 'phenomenology,' it should be understood as a study not merely of 'phenomena,' but of all appearances, including intuited particulars and abstract data[1]. The word 'appearance' is often confused with 'illusion,' but here includes 'reality.' It is about equivalent in

1 There is no point in coining a new term, even though the term phenomenon is in the present volume used in its primary sense of material or mental concrete particular, in contradistinction to intuited objects or abstracts. But note that in practice the term is often used more loosely with reference to complex appearances like 'a social phenomenon' – which include not only concretes, but also intuitive experiences and even abstracts.

scope to the term 'object' (content of consciousness) or 'thing' in logic (anything existing or thought of). Note well that here 'experiences' refers not only to the phenomena of physical perception, but includes mental percepts, and even intuited data. In common parlance, the term can be more restrictive (limited to sensory inputs) or even coextensive with 'appearances' (e.g. 'my life experiences' includes my abstract thoughts). And so forth – all terms will be made clear in due course. *See* ***Illustrations*** *at the end of the book.*

Phenomenology is a science based primarily on attentive detailed observation of one's own experience and discursive behavior, and only secondarily on careful logical analysis and ordering of such observations. Thus, practice of *meditation* is a prerequisite to development of this philosophical discipline, and our success in the latter depends on our skills in the former. Although philosophical awareness and thinking are ultimately obstacles to meditation (which rises above intellectual pursuits), the former can in the interim still draw significant lessons from the latter. Labeling phenomena as "phenomena", or making distinctions between them, or distinguishing them from intuitive experiences or from abstractions – such acts are all non-meditative; but they may well occur and be remembered in the course of meditation. (See **Appendix 1**.)

2. Knowledge is Based on Appearance

Our primary consideration ought to be just what is apparent to our awareness at each and every moment. Nothing can be granted offhand except this first given. ***Appearance is immediately granted – because there is nothing else to discuss or refer to, because discourse arises solely in reaction and in relation to it.*** Thereafter, we may stage by stage show how knowledge in general, including our alleged knowledge of those stages, develops.

The core thesis of phenomenology, thus, is that *knowledge is based on appearance*. This is in stark contrast to other approaches to epistemology, which propose that knowledge is based on 'external reality' or on 'subjective truth' or some such premature thesis. Moreover, phenomenology regards as essential that *the sequence in which knowledge arises and develops out of appearance* be clarified. A notion or suggestion may be appropriate if intelligently placed in the 'order of things,' but very misleading if misplaced.

- Consider, for instance, **Naïve Realism** (or Materialism or Objectivism)[2]. This philosophy proposes that we have a body with sense-organs, that when these come in contact with external objects sensations are produced, which in turn produce primary ideas (images) in the mind, which are what we experience and build more complex ideas (abstract concepts) from. At first glance, this thesis may appear obvious and worthy of universal belief. But upon reflection, we see that it leads to serious logical problems. If, as it suggests, ideas 'represent' external reality, how do we know that they indeed 'correspond' to it? If, as this theory implies, all we know are ideas (sense-data and their combinations), *how can we even get to know that there is an external reality at all, let alone a body with sense organs in which our minds reside?* Thus, surprisingly enough, this approach to knowledge is internally inconsistent.
- In reaction to this conundrum, some philosophers have opted for the opposite extreme, a **Mentalism** (or

2 Historically, at least in its modern version in the West, we owe this philosophy to John Locke (English, 1632-1704). The difficulties inherent in it were noticed implicitly by his predecessor René Descartes (French, 1596-1650), and later by the likes of David Hume (Scottish, 1711-76) and Immanuel Kant (German, 1724-1804). Notwithstanding, Naïve Realism has remained a basic belief, and a source of considerable confusion, for many people, including philosophers and scientists.

Idealism or Subjectivism)[3]. They have, in fact, accepted the core tenet of Naïve Realism that what we perceive and build knowledge on are mental substances called ideas, while simply dropping its thesis that these ideas originate in physical sensations in response to stimuli from external objects. The trouble with this thesis is that it involves a stolen concept, since it would be hard put to define mentality after having done away with that of materiality. Moreover, it does not really *explain* the mass of data at hand – it merely explains it *away* as illusory happenstance. It does not elucidate why there would appear to be an enormous universe of matter 15 billion years old, composed of innumerable galaxies, stars, atoms, quarks, including on a small planet called Earth apparent human beings, with apparent bodies, with apparent sense organs. Mentalism just ignores all this, or discards it as sheer fantasy; it does not make it comprehensible. It is therefore incomplete.

Having grasped the problem inherent in the former theory, we might be tempted to opt for the latter, however imperfect, were it not for the possibility of another approach, that of **Phenomenology**, which presents neither the flaw of internal inconsistency nor

3 For example, the Yogachara school of Buddhist philosophy.

that of incompleteness. Phenomenology brings together the best in both those theories, while weeding out their faulty elements.

- Phenomenology starts like Mentalism with the *given content of consciousness*, but identifies that content neutrally as 'appearance,' instead of taking up the prejudice that it is something mental (idea). For it must be realized that the concept of mind was built in contrast to that of matter; it has no meaning by itself, and would not have arisen were it not for the concept of matter. Phenomenology therefore posits a concept of appearance, which leaves the question of mind or matter open to begin with, a question to be answered in a larger context.
- Phenomenology ends like Naïve Realism with a belief in matter as well as mind, but it does not get to that thesis in the same manner. The error of Naïve Realism is not essentially its notion of a physical body having sensations that generate ideas, but the fact that it takes this notion for *immediately granted*, treating it effectively as a mere observation. Phenomenology avoids this error by understanding the notion in question as a *hypothetical model*, through which we manage to *organize* appearances into an orderly and consistent whole called knowledge.

Our premise is that the starting point of epistemology is never a blank mind in a social vacuum, but the belief framework of ordinary persons in a given historical and

geographical cultural context. Researchers in epistemology are *themselves* such ordinary persons in a given societal climate, with their particular viewpoints, though hopefully outstanding intellectual capacities. Any theory such researchers propose must ultimately convincingly explain the genesis of the ordinary frameworks. Whether the latter are thus wholly justified, or demonstrated to be aberrant to some extent, they can neither be ignored nor entirely rejected without logical absurdity.

> It is worth making a comment here, parenthetically, about the cultural context. A man like me, born in the 20th Century and educated in the West, normally takes the Realist viewpoint for granted, and assumes that everyone else in the world naturally does too. People with an opposite perspective seem at first unnatural (philosophical nitpickers or weirdo mystics), if not nonexistent. But it must be kept in mind that in other regions of the world and in other periods of history, there have been humans who sincerely held very different worldviews (consider animism or shamanism, for instances). One should remain open minded.

3. To Be Or Not To Be

One notable radical difference with ordinary thinking in our place and time is the Buddhist notion that we have no self. The Buddhist outlook stems from the position of Indian philosophy that all that we can cognize are *dharmas*, that is (in a primary sense) concrete phenomena of perception, and eventually (in an enlarged sense) the abstract derivatives thereof. The 'reality' of dharmas was considered 'illusory,' since they were impermanent, without abiding characters; and all the more so, derivative notions about dharmas. The Hindu branch of Indian philosophy opted for the thesis that beyond such elusive existents there is a (more 'real' and 'permanent') spiritual existence (with individual selves or souls, and a universal Self or God). Buddhist philosophy, on the other hand, forked off, denying any such additional existents (on the surface, at least, because they later admit a ground of being, which is known only on the highest level of consciousness). Moreover, some Buddhist schools effectively consider some dharmas as material, whereas others consider all as mental.

Some modern Western thinkers would agree with the no-self position, from a more mechanistic perspective, regarding man as a machine (an organic computer or

robot) devoid of soul. René Descartes (17th Century) was the first in the history of Western philosophy to raise the issue of selfhood (or raise it so explicitly and clearly). He inferred (*ergo*) existence of self (*sum*) from existence of cognition (*cogito*). More precise would be to say that we (at least partly) infer Subject and consciousness from the appearance of Object. Something appears – *to what (whom)?* a Subject! *how?* through consciousness! Some philosophers would consider such reasoning as compulsive, influenced by mere grammatical habit. But in my view, these characterizations are neither just habitual nor deductive certainties; they are inductive *hypotheses*[4] needed to settle certain logical issues.

> The term 'Subject,' by the way, is used as here relative to 'Object,' in the relation called 'consciousness'[5]. In the relation of 'volition,' the same entity is called 'Agent,' versus the 'will' (the act of will or that which is willed). The term 'soul' refers to the common ground of Subject and Agent (as well as affective and other roles). The term 'self' stresses the personality of soul, as distinct from other entities, which lack consciousness, volition and affection. The term

4 Hypotheses, incidentally, made by the Subject through consciousness.

5 I use capitals for the 'Subject,' and occasionally the 'Object,' of consciousness, to avoid confusion with the subject or object of a proposition, and other ambiguities.

> ‘spirit’ stresses the distinct substance of soul, compared to material or mental entities (without at the outset excluding that all three may ultimately be of uniform stuff).

In my view, the issue of self is relatively secondary in importance, in the (re)construction of knowledge from scratch that Descartes was pursuing here. He quite correctly saw that even apparently sensed objects may be dreamed. But he (so far as I know) missed the primary conclusion that ‘whether these appearances are reality or illusion, it is at least sure that they are.’ *That* ought to have been his main building block. In that case, the second inference becomes ‘something appears to be (thus, exists), therefore I and my consciousness of that appearance also exist,’ the reverse! But I am perhaps being picky. His ‘[I][6] think therefore I am’ can also in fairness be read as ‘***things appear therefore I am here seeing them***.’ Note also that the ‘therefore’ implies someone inferring; thus not only experience but also reason are implicit in the insight and statement.

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6 I put the ‘I’ implied in ‘cogito’ in brackets, so as to stress the verb ‘think’ as primarily implied. The ‘I’ is grammatically required at the beginning of that sentence, but logically is intended as given in the ‘sum’ clause, only after an inference indicated by the ‘ergo’ conjunction. This remark justifies my reformulation of Descartes statement as “think (thoughts appear), therefore am (they appear to someone, call that me)”.

In the present volume, we shall radically diverge from the Buddhist or Western Mechanist theses. It is indeed logical to suppose that if all we can cognize are the concrete physical and imaginary phenomena we perceive, i.e. *visual, auditory, tactile, olfactory or gustatory* manifestations of being, and the abstract ideas we form in relation to those phenomena, then there is no self. For no one can claim to see or hear or touch or smell or taste the self – it has admittedly no *perceptible* qualities. However, the way out of this dilemma is to abandon the underlying dogma (about dharmas), and admit that we have another sort of cognitive relation with the self and its exclusive properties (consciousness, will and valuation) – a direct self-experience that might be called 'intuition.'

This thesis need only be taken as a hypothesis to start with. But it soon, as we shall see, becomes evident that such self-experience is needed and extremely useful in solving a variety of epistemological as well as ontological problems. For examples, how are present memories (of past sensations) distinguished from present sensations? Or how are word intentions known to be intended? Thus, it is not through some arbitrary superstition that self and its functions are established, but through the utility and gradual confirmation of the hypothesis of intuition. Theories of knowledge that ignore or exclude intuition merely seem to manage to stand without it, because they do not explicitly confront certain issues, leaving them tacit and unresolved.

4. The Phenomenological Approach

Phenomenology, then, is a theory of knowledge that (i) lays emphasis on a neutral, noncommittal consideration of the building blocks of knowledge as 'appearances' – meaning all contents of consciousness, without prejudice as to their source or nature – and (ii) seeks out *organizing concepts and principles* that would successfully order this knowledge if proposed in an *appropriate sequence*. We may well propose elements of Realism or Mentalism, provided we do so in a critical manner.

The *basic building blocks* of knowledge include concrete experiences, meaning perceived material and mental phenomena and intuitions relating to self, and the conceived, abstract derivatives of the preceding. How to we proceed from experiences to conceptual knowledge? Among the *prime processes* involved are apprehensions of sameness or difference (comparison and contrast) and of compatibility or incompatibility (confrontation, face-off). These processes make use of a certain amount of imagination, which however does not detract from their impartiality, as we shall try to show. The intent here is to sketch *a phenomenological approach* to such fundamentals of epistemology. That is, we need to depict hypotheses as to how the abstract derives from the

phenomenal and intuitive, without any prior assumptions as to the nature of the phenomenal, intuitive or abstract, in a manner that considers appearances *ad hoc*.

Attempts to do this under a Naïve Realist presumption have little credibility in that they assume as given that the observer (me, you) has a 'physical' body, sense organs and a brain, whereas (upon reflection, more critically) these entities and their material substance can only in fact be justified *after* a long analysis and synthesis of all data. The alternative, phenomenological approach avoids this logical difficulty (circularity), by starting without assumptions concerning the nature of phenomena or their status (whether they are real or illusory), and proceeding in an ordered manner from the experiential level to the conceptual level, with reference to convincing cognitive processes. If we thereby arrive at a conclusion justifying the basic assumptions of the naïve view, so well and good; but we do not base our understanding on that view. It is an effect, not a cause of knowledge.

> What matters for us here in phenomenology, to begin with, is *what* is cognized, irrespective of *how* it came to be cognized. Because the 'how' is ultimately just another 'what.' For instance, the common thesis that the visual phenomena appearing before me here and now are the end products of a process of some kind involving physical eyes, constitute in this context an *attempt at explanation*. Taken as a given *ab initio*, it constitutes Naïve Realism. But to say this does

not exclude the truth of the thesis as a *final* conclusion.

Note that we say 'naïve,' not so as to intimidate eventual dissenters into following suit, but because there is an unquestioning acceptance, an unawareness of the issues involved, to correct. In our example, the main issue is (simply put) that, just as each act of seeing something requires validation, so the vision of the eyes themselves is itself open to doubt. It is not because our perceptions are occasionally wrong that they need evaluation, but because a lot of what we regard as perceptual is more precisely (at least in part) conceptual.

Phenomenology is the *intelligent* organization of appearances into knowledge. By 'knowledge' is meant loosely, to start with, our opinions and impressions. If these are well organized, they gain the status of knowledge in a strict sense, or 'true' knowledge. If they remain scattered and confused, they are classed as mere opinions and impressions, or 'false' knowledge. Among the basic methodological principles of phenomenology, we may cite the following:

(a) Attention to all appearances in all their details. Awareness that they change and accumulate.

(b) Constructing a theoretical model that takes all appearances into consideration, and does not simply ignore them nor (worse still) contradict them.

(c) The order of things in knowledge proposed by that model must be coherent, as an inappropriate sequence of events can hide or lead to contradictions.

(d) Such an epistemological model is necessarily flexible, open to revision, depending on its adaptation to the current mass of data and insights.

(e) It is not an axiom, but is acknowledged to be an ongoing hypothetical construct, to be 'proved' inductively by virtue of its adherence to the aforesaid reasonable principles (which may of course be viewed as themselves part of the construct).

Many historical philosophical errors have been caused by a failure to consider the order of things in the arising and development of knowledge. This is equally true in matters of detail, as in grand issues.

> For example, the Zeno paradoxes cannot be conceived as proofs that motion is impossible, but only as evidence that our (or Zeno's) initial *concepts* of motion are problematic; for motion is *experientially* manifest before and irrespective of any conceptual deliberation concerning it and all discussion concerning motion arises only in reaction to such experience of it as an attempt to rationally interpret and explicate it.

One of the main purposes of the present essay shall, therefore, be to identify the temporal and logical order of

the main items in knowledge, so as to preempt such errors.

2. ORGANIZING PRINCIPLES

1. The Order of Things

Philosophy cannot answer its basic questions any old how; it must proceed in stages, in such a way that its own assertions and implicit assumptions are equally addressed. If a philosopher does not take account of *the order of things* in his mind or knowledge, he is bound to develop erroneous views. To assess such order, one must trace the complex genesis of important concepts. (See **Figures 1**, **2** and **3**.)

Basic concepts like 'appearance,' 'existence,' 'reality,' 'illusion,' 'experience' and many, many more, are of course well-nigh *impossible to define* in verbal terms. The reason is obvious: definition has to stop somewhere; it cannot go on ad infinitum. Such concepts can at best be partly indicated, by pointing to experiences, partly communicated by negation. They are *nonetheless generally understood*, if only after some verbal clarifications.

One of the principal tasks of philosophy is to ***identify the main organizing concepts or principles***, through which all the information given us in appearance can be summarized, ordered and understood. Some of these subdivide the world of appearance into smaller, variously interactive domains and classes. Others are concepts of

number, which make measurement of these various elements of appearance feasible, in the realms of space and time, or in statistical contexts like modality and causation, or in other, more specific issues.

In this context, it would be necessary to hypothesize ***how the distinction arises phenomenologically***. That is to say, are there phenomenal *marks or events* that promote and justify such distinction? For example, is matter simply more vividly manifest than mind, or otherwise evidently qualitatively different, or do we make the distinction with reference to intuitions of our own inner actions, such as looking in the direction of the senses versus looking in the direction of memory or of one's own intentions. As we shall see, my conclusion in many contexts is that phenomenal marks or events are not sufficient differentia, and we must refer to self-experience to explain certain primordial distinctions.

If we proceeded according to the natural or logical 'order of things,' our account of the foundations and development of knowledge would begin with meditation on and discussion of **present Appearance**, by which I mean the totality of appearance, in a given moment or cumulatively over time. Then we would dissect such totality into its **constituent appearances**, in an appropriate order, and investigate the various reasons and ways such distinctions arise, as well as the measurements involved in making them. This is of course an enormous task, and I do not propose to fulfill it exhaustively in the

present volume but merely to begin it and thus illustrate it.

> The topics treated in this work cannot be presented in such strictly orderly fashion without losing the reader's interest. Some segments will grab the reader's attention, others may seem tedious; so the writer must gauge what to put where. The important thing is to try and make clear within the text what the correct ordering of information would be. Some topics will barely be mentioned, because they have been or will be dealt with in considerable detail in other works of mine, and I see no point in repeating myself. Nevertheless, some repetition is inevitable, if only in the way of summary, if my discourse is to be understood.

The following are some of the most important *organizing concepts or principles*, which we shall try to elucidate to some extent in the coming pages. This catalog is not intended as exhaustive or systematic, but rather as suggestive and associative.

a) Large concepts:

- Distinction between appearance, existence and reality (and their respective negations); ontology.
- Discerning object, consciousness and subject; epistemology.

b) Analytic concepts:

- Distinction between phenomena (material or mental), intuitive (self and its immediate functions), abstract

(concepts about phenomena, intuitives and/or abstracts); comparison, confrontation, verbalization, classification; inductive and deductive logic.

- Distinction between matter, mind and spirit.
    - Matter: surrounding world (atoms and molecules, quarks and stars, fields) and own body (sense and motor organs, brain); physics, physiology.
    - Mind: memories, imaginations, anticipations, mental feelings; psychology.
    - Spirit: self/other; soul, cognition, volition, valuation; psychology, ethics.

c) Concepts of mathematical relation (measurement):

- Discerning number (unit, plurality, proportion); arithmetic (algebra).
- Discerning time (present, past and future), space (distances; adjacent, apart; inner, outer), motion and change (all of which, in matter or mind); chronology, geometry.
- Discerning modality (necessary, actual, potential, and their negations) and causality (spontaneity, causation, volition, influence), in all their modes; statistics, tropology, aetiology.

2. Appearance and Other Large Concepts

By '**appearance**' is meant, first of all, anything and everything – but upon reflection, more specifically anything which 'comes to mind,' by whatever means. This is not a definition, but an indication. The term appearance is too fundamental to be definable without circularity, we can only 'point to' its instances; indeed, whatever we can point to, in any sense of the term (physically with a finger, mentally by projecting a boundary, verbally by defining or intentionally by focusing on), is an appearance. Thus, 'appearance' refers to any object – of consciousness (but of course, 'consciousness' is itself too basic to be definable – see further on).

The concept of appearance differs from that of '**existence**' as of when we assume that *things exist before or after we are aware of them*, and therefore by extrapolation that *things exist that we are never aware of*. This assumption that there are things (existents) we are not conscious of, serves to explain or integrate, among others, the appearance that *things disappear and reappear* (signifying continuity of existence in the interim – granting reliability to memory). It also expresses our belief that *other* selves beside oneself exist

(as opposed to solipsism), each of which is aware of (and reports) some things one is not aware of, or unaware of some things one is aware of.

Thus, although the two concepts may initially coincide, at some stage we come to regard *appearance as a subcategory of existence*, implying that whereas all appearances exist, some existents are *not* apparent. Non-apparent existents are, note well, hypothetical; i.e. 'nonappearance' is a word whose content is by definition unknown but not in principle unknowable. Non-existents do not, of course, exist; which means that the word 'nonexistence' has no ideational content, but is just a *verbal* construct by negation (an artifice we use as a sort of garbage can for incoherent hypothetical concepts or propositions).

> We may here also mention, in passing, the subsidiary concept of *actuality*, or 'present existence,' which arises in the specific context of natural modality, to distinguish between potentiality *with* present existence and that *without* present existence.

The concept of appearance likewise to begin with coincides with that of '**reality**.' But as of when we come to the conclusion, as a way to explain certain illogical appearances (like contradictions between experiences or between our beliefs/predictions and experiences) that *some things are illusory*, i.e. that consciousness *errs* occasionally, we posit that *reality is a mere subcategory of appearance, and therefore of existence*. The

complementary subcategory of appearance, unreality or '**illusion**,' also has the status of existence, note well. There are also appearances that we are at a given time unable to classify as reality or illusion; these are temporarily *problematic*.

> One cannot claim that *all* appearance is illusion, without thereby contradicting oneself, since such a claim is itself an appearance that is being assumed a reality; it is therefore logically self-evident that *some appearances are realities*.
>
> The *deductive* relation between these concepts is therefore this: appearance is the common ground of reality and illusion, i.e. *implied by both but not implying either*. Reality and illusion are mutually contradictory concepts – both cannot be true/applicable, but one of them must ultimately be so. Thus, every object of awareness can be claimed as appearance offhand, without prejudicing the issue as to whether it is real or illusory.
>
> However, appearance and reality are also *inductively* related, as follows: *every appearance may be assumed a reality unless (or until, if ever) it is judged (for logical reasons, as mentioned) to be an illusion*. Just as the concepts of appearance and reality are initially (at an uncritical, naïve level) the same, so in every instance they remain equal except where illusion is demonstrated (or at

least, doubt is instilled). This principle, indeed, underlies and justifies all inductions.

Note well that the above differentiations between existence, appearance and reality are not immediately obvious, neither in the development of an individual's knowledge nor in the history of human thought. They are not *a priori* givens, or self-evident deductive certainties or an axiomatic absolute truths, but conclusions of rational (conceptual and logical) process. That is, they express a set of hypotheses which *inductively*, over time, have been found to satisfactorily integrate and explain a mass of appearances, i.e. to fit-in in a comprehensive and convincing world-view. Thus, to mention these differentiations *ab initio*, as we do here, may be misleading – they are only at this stage vague notions and assumptions, which are in the long run further defined and found confirmed by the absence of any equally credible hypotheses, any other conceptual constructs which prove as coherent and consistent both internally (as theoretical postulates) and externally (in relation to cumulative appearance, and especially experience). Their being hypotheses does not per se invalidate them, for the claim that all hypothesizing is invalid is itself equally hypothetical and so self-invalidating.

We shall again anticipate, with reference to what we mean by '**consciousness**' or 'awareness' or 'cognition.' This may be defined as *the relation* between Subject and Object, whatever activities or states either may undergo

within such relation[7]. The fundamental given is appearances – but we have no reason to believe that all appearances appear to each other, i.e. we seem to have a privilege among existents in being aware of other existents. We suppose thereby that the fact of 'appearance' is different from mere 'existence,' and occurs *only* relative to a conscious Subject.

The '**Subject**' of this relation is identified with the intuited self (me, in my case – you, in yours), but such intuition has at first only the status of an appearance; it is initially a vague and uncertain notion rather than a fully developed and justified concept. The other pole in the putative relation of consciousness, the '**Object**,' refers to the appearances involved (which are here given another name to stress their being taken into consideration specifically within the said relation).

To posit such a relation does not tell us anything much about it, admittedly – we merely have a word for it, referring to something supposedly too primary in knowledge to be definable. But the trilogy Subject-consciousness-Object is posited by us in a bid to understand and explain how and why appearance differs from existence. The meaning and validity of this

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7 Whereas 'consciousness' refers to the relation, 'cognition' is conceived rather as an 'act,' and 'awareness' as a state – but for our purposes we shall regard them as equivalent terms. The point is that the essence is relational, irrespective of activities or states that may often attend it.

hypothesis, including the new ideas of a Subject and consciousness, are not immediate, but established with reference to the cumulative thrust of experience and reasoning, including consideration of conflicting hypotheses. It is only after the latter are found less coherent and consistent than the former that we inductively conclude that our hypothesis is convincing and reliable.

Let me emphasize preemptively that to postulate that ***appearance signifies existence within awareness*** is not meant to imply that the existence of appearances is *caused by* awareness, but only to *differentiate* putative non-apparent existents from appearances. The relation of consciousness is postulated as per se neutral, affecting neither the Subject nor the Object. Existents remain essentially unchanged by it when they enter the field of awareness and are labeled more specifically as 'appearances.' To presume the contents of consciousness 'subjective' (in the pejorative sense of the term), implying a dependence (creation or modification) of the Object by the Subject, is a very different hypothesis; one, indeed, hard to uphold, since if we apply it to itself we put it in doubt. Moreover, if such subjectivist hypothesis were claimed true, there would be no need for it, for 'appearance' and 'existence' would be coextensive. So our hypothesis of consciousness is inherently rather 'objectivist.' Evidently, there is lots of reasoning behind such concepts and postulates; they are not arbitrary assertions (as some philosophers contend). Also, such

reflections and clarifications are not and need not be consciously made before at all embarking on the enterprise of knowledge; they flower gradually in response to specific doubts and questions.

3. Material, Mental, Intuitive, Abstract

Now, of all appearances, those labeled '**phenomena**' are the most manifest, the most evidently present to our consciousness. They are so called to stress that we should not immediately take for granted their apparent reality, having over time become aware that some are best judged illusory after due consideration. Phenomenal objects seem more directly or immediately knowable than others – apart from the issue of reality or illusion just mentioned – so we assign them a special kind of consciousness or cognition called perception and label them 'percepts.'

Among phenomena, some are more ostentatious and permanent than others and seem relatively far and independent of us – these we refer to as '**material**' or 'physical.' The remainder we label '**mental**' or 'imaginary,' distinguishing them by their relative poverty, transience, intimacy and dependence on us. Most of our common 'world' (cumulative appearance) is composed of material phenomena, and all or most mental phenomena seem to be derivative replicas of them or of parts of them. Among material phenomena, some are considered 'in our own body' or 'physiological,' and the others 'outside our body,' our 'body' being distinguished

by its relative proximity (to the observer) and the peculiar events occurring in it (sensations and sentiments). Some bodily phenomena (such as sentiments and 'actions') seem to have mental origins, and so are called 'psychosomatic.' Conversely, many mental phenomena are regarded as having bodily causes.

In addition to mental phenomena, we should distinguish the non-phenomenal appearances we may call '**intuitive**' appearances, which are our impressions of self-knowledge (one's self, cognitions, valuations, volitions). These differ from imaginations, in that they per se have no phenomenal expressions, yet they share with mental phenomena the appearance of intimacy and being in our power to some degree. They are assigned a specific kind of consciousness called intuition (whence their name here) or apperception.

Phenomena (mental or material) and intuited objects have in common a status of *immediate evidence*, which we express by calling them '**empirical**' or 'experiential.' Experiences are 'givens' in a way other appearances (namely abstracts) cannot match. Considered purely in and for themselves, without interpretation or inference, they are unassailable, not requiring any proof. To distinguish them from abstracts, they are called **'concrete'** appearances or concretes.

'**Abstract**' appearances or abstracts may be classed as last in that they seem *derived*, by various means, from the preceding, experiential (concrete) varieties of appearance. These means are collectively labeled

'rational' (implying they proceed from a faculty of reason). The term abstract refers to the primary act of reason, namely abstraction (which depends on identification of sameness or difference, i.e. on comparison and contrast between two or more appearances).

Abstract appearances share with intuitive ones the lack of phenomenal manifestation; we have nothing to directly show for them, they are phenomenally blank. But abstracts differ from intuitive appearances, in that getting to know the former requires a process (comparison and contrast), whereas the latter are directly known (in self-experience). Furthermore, abstract objects are 'universals' and essentially 'external to us,' whereas intuitive objects are 'particulars' and very much 'part of us.'

Consciousness of abstracts is called conception, so they are also called 'concepts.' But the processes leading to concepts (our discourse) are far from simple and seem subject to many rules; the latter are labeled 'logic.' Abstracts require proof, and ultimately some sort of empirical grounding. The only exception to this rule is the case of self-evident propositions, which cannot logically be denied without committing a self-contradiction. But even in the latter cases, the concepts involved are never entirely 'a priori,' but require some preceding experience to have at all arisen.

Let me summarize here: perception is knowledge of material or mental phenomena; intuition is self-

knowledge; perception and intuition are experiences, their objects are concrete particulars; conception is knowledge of abstracts, derived with the aid of logic from phenomenal or intuitive data. 'Knowledge,' of course, at first simply means consciousness or cognition – the term is rendered more precise later with reference to cumulative Appearance. 'Thought' and 'idea' are, by the way, catchall terms that may include a mix of conception (concept formation, conceptualization), imagination (visualization, verbalization, forming hypotheses) and logical discourse (inductive and deductive), all of course implying some experience (sensory or intuitive).

> As I have indicated earlier, I am not convinced that qualitative differences alone suffice to distinguish material from mental phenomena. We tend to think of the latter as less clear or vivid than the former, but this is not always the case. Dreams are sometimes extremely vivid and colorful, and the physical world is sometimes misty and unclear. For this reason, I suggest that phenomenology must suppose that introspection is to some extent involved in making this fundamental distinction. We are presumably somehow aware of the *direction of input* of the concrete data. Material data is 'felt' as coming from or via the body, whereas mental data is 'felt' as coming from a closer source (called the mind). Granting that such 'feelings' of direction of

source are not themselves phenomenal marks (otherwise we would be begging the question), we must interpret them more precisely as *intuitions*. To be consistent we must say that we do not intuit where the data comes from, but rather intuit in what direction *we turn* our attention to gain access to the data.

It should be noted that we have above effectively distinguished three **substances** or stuffs of existence, matter, mind and spirit. We have based their differentiation partly on the fact that some experiences (those intuited) do not have phenomenal characteristics; and partly (as regards the distinction between material and mental phenomena) on the differences in phenomenal properties and locations combined with assumed intuited differences. All three of these substances may give rise to concepts. We may also presume souls, i.e. spiritual entities, other than our own through their apparent phenomenal effects and by conceptual means.

Just as the phenomenal modalities and qualities and their behaviors are considered as mere varieties of matter and mind, so the cognitions, volitions and affections of the soul need not be assigned yet another substance, but may be considered as events or properties of that same substance. Abstracts relating to material, imaginary or spiritual givens do not, likewise, require a further substance, but may be considered as mere expressions of these three substances. There is nothing

epistemologically unreasonable in assuming substantial differences between the said three classes of object. It remains possible that the three substances are ultimately different versions or degrees of one and the same stuff.

The concept of substance is introduced relative to those of static attributes and dynamic movements, implying a presumed substratum for them. It allows us to presume continuity of something, an individual **entity**, in the midst of motion or change. The various attributes and movements are thus conceived not as mere happenstances but as all 'belonging' *to* and 'caused' *by* an abiding, unifying entity8[2]. We also assume that different instances of that kind of entity remain essentially the same (i.e. of same substance) although some of their attributes and movements may differ. Note well that both 'substance' and 'entity' are abstracts. Although material and mental phenomena have phenomenal character, while soul has not, the latter may nonetheless equally legitimately be conceptually posited as being concrete.

These beliefs, in substances and entities, are not immediate certainties but constitute conceptual *hypotheses*. This fact alone does not disqualify them, contrary to what some philosophers suggest. If a hypothesis gives rise to a world-view that is always, all things considered, consistent and confirmed, and no

alternatives serve the same purpose as well or better, then it is inductively worthy of adoption. This seems to be the case with regard to the concepts of substance and entity. Without them, we would find ourselves unable to ‘make sense’ of (integrate, explain) all our experiences and intuitions; no one has to my knowledge managed to construct in detail equally credible and useful counter-hypotheses.

4. Number, Space and Time

As will be explained, concepts are *measurements* that experiences have in common. Measurement means use of **number**, i.e. selection of a unit (distinct entity or feature), identifying and counting pluralities of such units (frequencies), and comparing such pluralities (proportion). Number is, in particular, implied in our subdivisions of time and space, and in considerations of modality and causation; but the scope of measurement is of course much larger. The detailed study of these issues gives rise to the sciences of mathematics, including arithmetic, geometry, algebra, statistics. I will not go into them here, save for a few remarks that seem pertinent.

Phenomenology has to note that numbers imply intuitive acts. To define a unit of something, we must mentally delimit some segment of appearance. This selection is an intention, a subjective act. Furthermore, when we count a plurality of things, we need to decide what common feature we will refer to so as to group them. That is to say, to count things we need to classify them (whether simply as 'any objects of thought,' or more specifically as 'the white horses in my field' or whatever). Here again, an intention is involved. The same is true when we move on up to the abstract realms of algebra. Thus, even

in the background of pure mathematics, we must acknowledge introspection.

With regard to **space** and allied concepts. In the visual field (which is the first domain we relate space to), space refers to the length of a line (in comparison to some other line) between any points the observer focuses on, and eventually to the direction of that line (again relative to some other line). The visual field ordinarily contains many different colors, shades and outlines: these shapes commonly guide our choice of points to measure distances and angles between. Thus, gradually, we evolve geometrical concepts, including the concepts of dimension (more on all that in a later chapter). Concepts like: contiguous, separate, overlapping, inside, outside, near, far, etc. all of course derive from situations we encounter in the visual field. Many of these concepts are then carried over into other fields, and even into general logic.

It is important to distinguish the concept of '*empty* space' from the more general concept of 'space.' Many philosophers seem to get bogged down due to failure to make this distinction. We effectively see space (at least surfaces) whenever we see anything; space is a concept with concrete referents, viz. any area of the visual field. In contrast, empty space is a *hypothetical* concept, because we never see instances of it. If we look at the sky, we see a curtain of light blue or white or black – we never see nothing at all there. If we look at the space between two objects, we may only call it empty by

deliberately ignoring all the things (colors, shades) in foreground or background between them. It is only by inventing a 'third dimension' (an abstraction) that we 'create' the emptiness between the two objects. Thus, space as a receptacle of objects, something objects move in, something apart from objects – these are constructs, that we find useful, but whose status is that of hypotheses.

Another comment worth making concerns the different phenomenal modalities of space. We have the impression that we know 'analogies' of space through the various sensory organs, but it is not strictly speaking the case. Space is essentially a visual phenomenon. As mentioned previously, we mentally project this visual space and its properties into the other sensory modes[9]. This allows us to effect an inner *correlation between sensory events or sense-modalities*. Thus, different tactile or auditory events may be regarded as points in a continuous trajectory, by mental projection of (visual) lines linking them. Or again, the direction of a sound or odor may be hypothesized by mentally placing it within a (visual) mental space. Or again, the touch sensations inside the

9 I think we have to assume that non-visual sensations generate a unit visual mental phenomenon, which is then placed by us in a visualized "map" of our body or surrounding space. Without such an initial generation of some minimal visual message, it is hard to conceive how the later interpretative overall picture of things could be produced.

mouth can be used to form a mental visual image of objects in it (this is, by the way, possibly why babies often get information on objects by putting them in their mouth).

Thus, we should not multiply 'spaces' unnecessarily. There is, however, one important duplication of space, implied in what we have just said. In addition to the visual space seen through the physical eyes, there is an analogous visual space seen through our 'mind's eye' – that is to say, in the mental domain. That concept is unavoidable, since just as with a material visual field we can all construct space concepts, so with a mental visual field we can likewise do. These two spaces can be known independently of each other. They are similar, but not one and the same. They may overlap somehow, as is evident from the experience of hallucination and from the use of mental space in tactile, auditory and other such situations; but they do not apparently interact, at least not directly.

The spiritual domain, i.e. the soul and its functions, does not (as far as I can tell) have noticeable spatial characteristics. But the soul is sometimes 'represented' by visual images (e.g. as a ghost coextensive a body). Such 'representation' is nothing more than symbolic or hypothetical, not based on concrete phenomena. It can however be useful conceptually, as for instance to suppose that one part of the self monitors or controls another part of the self.

Another important organizing concept to consider is that of **time**. This arises as an explanation of apparent movement (motion or change) *within* any present Appearance (minimal version, assumed independent of memory) and of apparent change or plurality of Appearances (enlarged version, relying on the hypothesis of memory). Note this well. A concept of time is indeed possible within a single present Appearance, be its constituents material (external time) or mental or intuitive (internal time). This concept of time is independent of that of memory (and could be labeled 'objective time' for that reason), but is not our whole concept of time. The latter is based *also* on comparisons between successive present Appearances, and therefore only possible by hypothesizing the concept of memory (because of the necessity of such introspection, this may be called 'subjective time').

The concept of **memory** must therefore also be considered as one of the basic 'organizing principles' of our knowledge. It is a hypothesis, through which we try and *enlarge* our concept of time, to include not only events experienced in the present but also those allegedly experienced in 'previous' presents. The concept of **anticipation** enlarges time still further, in another 'direction,' time being conceived as a line, a fourth dimension of existence, by analogy to space, though with a distinctive irreversibility. But memory and anticipation are not conceived as fully equivalent functions, differing only in the temporal placement of their objects. Memory

is conceived as containing (if anything) residues of facts (experiences), whereas anticipation is normally conceived as at best educated guesswork (projection).

We cannot prove memory, except by inductive appeal to our memories, taking their apparent suggestions at their face value, except in cases where they turn out erroneous.

Digging deeper, phenomenology now asks the following question: *precisely on what empirical bases do we distinguish non-present from present appearances, and subdivide the non-present appearances into past and future ones?* I will try and propose an answer to this question, without claiming it to be complete and final.

The '**present'** portion of time is firstly the overall duration of the present Appearance, the moment. Within the present Appearance, we distinguish constituent phenomena and intuitions that seem hazier, less forceful, than others, and yet resemble those others and give the impression of continuity with them. These presentations are presumed and classed as not in themselves present, but as mere 'representations' of presentations which occur in an extrapolation of the present (short) time-line, in one direction or the other. Some of these representations seem to refer to previous present Appearances; these are classed as memories and located on one side of the time-line called the '**past**.' The remaining such representations seem not to refer to previous present Appearances, but to be inventions, mental projections (imaginations) of things to come;

these are classed as anticipations and placed on the other side of the time-line called the '**future**.'

Here again (as in the case of the distinction between material and mental phenomena), I doubt that we can distinguish between present impressions of present events (the present) and present impressions of past events (the now remembered past) or of future events (the now projected future), *only* with reference to marks (like degree of vividness). I think we have to assume that there is *also* an intuition by the Subject as to where his experiential data is coming from – from his senses (the present), or from his memory (the past), or again from his creative imagination (the future). The recourse to an intuitive faculty here is similar to that for distinguishing between material and mental, because after all memory of material events means their conversion into mental events. Memory of mental events is less of an issue, since recall of past imaginations is simply re-imagination of same; and in this case intuitive knowledge of the difference is more easily assumed.

> These kinds of considerations and reflections serve, in my view, to add weight to the hypothesis that we have intuitive empirical knowledge in addition to inner and outer perceptual empirical knowledge. Conversely, the hypothesis of intuition reinforces the hypothesis of memory; they mutually buttress each other. Additionally note that while intuition is initially proposed as knowledge of self, own cognitions, volitions and

valuations, we have here somewhat expanded or further elucidated the powers of intuition, by assuming its ability to assess the direction of incoming concrete data (from senses, memory or creativity, or from mind or matter).

As the above discussion shows, philosophers who wish to discard the idea of subjective intuition, or direct self-knowledge of some of our inner workings, are hard-put to explain some of the other basic concepts that they effectively accept, such as distinction between matter and mind, or between past (memory) and present (sensation) and future (anticipation). However, none of this means that whatever someone carelessly declares to be an intuition is indeed an intuition. Our introspections remain fallible. Logically, they are admitted as hypotheses to be gradually confirmed or rejected in each instance with reference to the totality of experience and logic. This avoids all danger of arbitrariness, or circularity in justification, or eventual contradiction.

With regard to the *abstract* constituents of an Appearance, they are thought permanent rather than transient like phenomena or intuited events, although (a) they are usually conceived by comparisons between past and/or present appearances, and (b) of course the event of their conception is located in the past or present and it may go on over time, and (c) once generated they are stored in memory and (d) by their nature they anticipate

future appearances. All this relates the conceptual to time, but does not mean that its contents are temporal like percepts or intuitions. Concepts have no existence other than as measures of experiences; when the experiences cease to recur, the concepts in a sense continue to exist in the minds of men, in that men may remember or infer their past existence. If later the experiences recur, we may say *ex post facto* that the concepts remained in potential existence during their actual absence.

I will stop here, save for a couple more comments.

The first is that although I have herein placed consideration of space and time after the distinctions between phenomenal (material or mental), intuitive (subjective) and abstract appearances, it is evident that many of the things said about space and time do not depend on these distinctions. Thus, for instance, we can measure a visual field without specifying its substance (material or mental). On the other hand, some issues relating to space or time are not independent of these distinctions. For instance, when discussing memory or the concept of the past, we had to refer to the concepts of matter, mind and intuition. With regard to the concepts of modality and causality, the concepts of space and time play important roles in their development, rather than the reverse. Thus, when issues of the ‘order of things’ in knowledge arise, we must be attentive to the specific issues we are dealing with, and not refer to concepts in bulk.

The other point I want to make is that although I do not here mention the space-time concept of Einstein, which ties the two concepts together in novel and much firmer fashion, I have no doubt that Relativity is of radical importance to all the issues treated here. I would particularly like to eventually think about the impact of his insights on the theory of universals, since presumably waves in a relativistic milieu do not have the same properties as those in an absolute space. But for now at least I am not qualified to comment on this.

5. Modality and Causality

Modality and **causality** are also major organizing principles in our knowledge.

I have treated the concepts of modality in great detail in my work *Future Logic*, and I am treating the concepts of causality in great detail in my work *Causal Logic*. So I will not here go into them in any detail. Suffices to say that they are essentially *statistical* concepts, variously related to each other, through which we record, or try to forecast, the (proportional or absolute) frequencies of occurrence of appearances, alone or in conjunctions with other appearances. These concepts therefore rely on numerical concepts; and they help us to order information within a present Appearance, and more broadly in cumulative Appearance.

> The underlying concepts of ***conjunction*** (indicated in propositions by the word 'and') and ***non-conjunction*** (denial of conjunction, 'not-and') are of course crucial. Conjunction can be directly apprehended (we can experience two things as both present in a given cognitive field), whereas negation of conjunction is a more rational object (we look for a projected presence and fail to find it). Conjunction is however not in

> itself a concrete phenomenon or intuitive experience, but an abstract relation between phenomena, intuitions or abstracts.
>
> Thus, both conjunction and its negation are conceptual objects, though to different degrees; the former is more directly known than the latter. Note well: this does not make them artifices; there is nothing arbitrary in their apprehension or judgment. These concepts are needed to formulate hypothetical and other conditional propositions, and the causal propositions built up from them.

Modality and causality are very radical principles of knowledge, because they are involved in its organization at a notional level long before they become clearly formulated concepts, and because they can be utilized before we make (i.e. even without making) distinctions like those between concrete and abstract, or material and mental, for examples. At an explicit level, they imply number; but on a notional level, they may be grasped and used without such references.

I have identified many ‘modes’ or types of modality and causality. The main mode, an ontological consideration applicable to individual existents, is the ‘natural’ mode (and its subsidiary ‘temporal’ and ‘spatial’ modes). Another important mode is the ‘extensional,’ which treats classes as individuals. The ‘logical’ mode is an epistemological version, which refers to contexts of knowledge, instead of circumstances of existence. Some

modes relate to volition, as for instance the ethical or teleological mode, which refers means to ends.

Within each mode, there are various categories of modality and causality. Thus, the categories of modality are: presence or absence; necessity, contingency (possibility and possibility-not) or impossibility; probability or improbability. These are variously defined: possibility, as presence under certain conditions; necessity, as presence under all conditions; and so on. Their interrelations follow: necessity implies presence, which in turn implies possibility; and so forth. In particular, the concepts of incontingency follow inevitably, by negation, from those of possibility to be and possibility not to be, so that one cannot logically both uphold the latter and deny the former[10]. The categories of modality may be given more specific names in each mode. For instances: in natural modality, presence is called actuality and possibility is called potentiality; whereas, in ethical modality, possibility is called permissibility.

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10 This is stressed to preempt foolish philosophies, like that of Hume, which while admitting (if only by implication in their discourse) the existence and knowability of 'possibilities' pretend to succeed in invalidating the concept of 'necessity.' Logically, no concept that refers to *a part* of existence (like 'possibility') may be used without thereby granting its negation, too, so as to account for and cover *the remaining portion* of existence.

> Attention must also be given to derivatives of modality, concepts like ***seemingly***, ***allegedly***, etc., that imply modality in some sense (e.g. possibility, probability), but which additionally define the experimental or experiential or report-based or hearsay epistemological basis of the modal nuance.

A phenomenological approach to modality would ask such questions as: 'where do potentialities that are not actual at a given time actually reside?' Our answer to that one will be (as it was in *Future Logic*) that the common idea of potentiality as referring to some 'substantial quality or entity' actually resident in the 'nature' of the thing having it, as a presence that changes form when it actualizes, seems redundant, a breach of 'Ockham's Razor' of conceptual economy; it suffices to assume that the potential resides 'in actual surrounding circumstances only.'[11] The potential may be viewed as a lesser 'degree of being' than the actual, which in turn is a lesser one than the necessary, with reference to the frequency of occurrence over the whole 'existence' of that which has it. But this difference between transience and permanence, or variability and constancy, does not have

11 Buddhists would say that potentiality is 'empty' – i.e. it makes no trace in that which has it, but exists solely in the conditions that may eventually, given an appropriate cause, actualize it.

to be reified. Concepts may refer to abstractions, as well as experiences.

A phenomenological approach to causality would begin with consideration of events or things of any sort as 'happenstance,' before deciding *whether or how* they are 'caused'[12]. I myself use the term 'causality' in its widest possible sense, as applicable to any answer to this question. I thus accept, as at least conceivable, spontaneity, causation, volition and influence. Whether these philosophical concepts relating to 'causality' all have expression in our world is an issue open to debate; but we may and must first try to elucidate and interrelate them. The issue is to be resolved without prejudice, by due consideration of experience and how to convincingly organize it. Thus, if physicists (such as Niels Bohr) considered that some subatomic events could not credibly be assumed to have causes, we may concede the hypothesis of 'spontaneity' in the physical domain at the levels concerned as an explanation.

Causality, then, is not to be equated at the outset (as it has been by some in the past) to causation, meaning physical and (by extension) psychological determinism. The negation of causation may also be considered as a 'causal' explanation. Similarly, volition cannot be simply

12 This 'first things first' attitude is equivalent to that of taking appearances at face value before deciding whether they are reality or illusion.

waved-off, but must be granted due consideration. And indeed, we need to persevere in this open-minded attitude, for whereas causation and with it spontaneity are relatively easy to define with reference to *frequencies of conjunction* of phenomenal events or abstracts about them, defining volition or 'free will' is very difficult. No one to my knowledge has succeeded so far, let alone proving that volition exists, i.e. that people and animals have this power. The concept of influence is subsidiary, since we can define it as 'making it easier or more difficult' to will something.

Phenomenology may take as experiential data of sorts the anthropological fact that most or all people in practice if not in theory consider that they have powers of choice, of decision, of initiation of mental thoughts and physical movements. Such beliefs do not prove volition, but constitute corroborative evidence in an inductive hypothesis. Another public sector fact to consider is that the concept of volition precedes that of causation in mankind's history (and still does so today, I believe, in the personal development of individuals). Long before we reached an understanding of things as having 'natural causes,' we were explaining the movements of stars or stones or our own fate or moods with reference to 'spirits' or 'gods' or later (with the advent of monotheism) to God.

Our concept of 'force' is obtained by abstraction from the introspected physical sensations of pushing, pulling and squeezing. This notion is then used to help us

understand *by analogy* the determinism of events we (today, at least) consider as natural and not as involving any volition. Thus, Newton conceived gravity as a "field of force," and this terminology has remained with us for other fields. Even in our modern statistical concept of causation, we explain the constant conjunction observed as being symptomatic of a "causal connection," i.e. an underlying (natural) 'force.' Similarly, we would imagine spontaneous generation as a sort of 'forcible' gushing forth!

The 18th Century Scottish philosopher David Hume acknowledged this subtext in his critical discussion of alleged causal 'connection.' For him, such a 'tie' between events was dubious, first because we never perceive instances of connections, but only instances of mere conjunction.

> *"All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem* conjoined *but never* connected*." (P. 360.)*[13]

This argument of Hume's is, note incidentally, based on an observation relative to (and which assumes) human will, a form of causality more difficult to conceive than causation! In the human (volitional) domain, we do distinguish between (a) conjunctions of events that

13 In An Enquiry Concerning Human Understanding, Part II.

occurred accidentally relative to human will, i.e. coincidences, and (b) conjunctions of events that were deliberately intended. It is significant that Hume's 'mere conjunction' is intelligible to us due to our experience of (a), while it is (b) that makes his discussion of contrasting 'connection' meaningful to us. Hume does not define what 'connection' would be in the natural (i.e. non-volitional) domain, before rejecting it. At best, then, his argument amounts to saying that the notion is too *vague* to be scientific.

Moreover, Hume explains away our belief in connection as due to a mental habit produced in us by repetition.

> *"But there is nothing in a number of instances, different from every single instance, which is supposed to be exactly similar; except only, that after a repetition of similar instances, the mind is carried by habit, upon the appearance of one event, to expect its usual attendant, and to believe that it will exist. This connection, therefore, which we feel in the mind, this customary transition of the imagination from one object to its usual attendant is the sentiment or impression from which we form the idea of power or necessary connection." (P. 361.)*

We could retort, for a start, that his thesis is internally inconsistent, if it is understood as a denial of methodological validity to generalization. For it is clear that Hume's own statement about human habits is a generalization from his own observations. He generalizes

from some moments of his experience to all moments, and from his own experience to everyone else's. Moreover, his statement is presented as an *explanatory* thesis, regarding what 'causes' us to (erroneously, according to him) infer a fact of causation from such mental association. He thus implicitly lays claim to some knowledge of some sort of causality, that of the force of habit. Is his thesis, then, that causation is more knowable in the psychological domain than in the physical? I doubt it; rather he did not notice the inconsistency.

> *"The appearance of a cause always conveys the mind, by a customary transition, to the idea of the effect. We may, therefore, suitably to this experience, form another definition of cause, and call it,* an object followed by another, and whose appearance always conveys the thought to that other.*" (P. 362.)*

For Hume, then, what we call causation is only an association of ideas. That is, we think events to be causally connected because they happen to be constantly conjoined in our memory. Whence, he effectively 'infers' that causation is a figment of the imagination. But his thesis is a result of his imprecise thinking. What he seems to refer to are situations like the following: e.g. a man first met his wife-to-be when a certain musical tune was playing; since then, whenever he hears (or

remembers) that tune, he is *reminded* of his wife[14]. But we would not regard such a situation as indicative of causation, since in fact he does *not* physically see his wife again every time he hears the tune again! For this reason, we would call this conjunction through mental association of wife and musical tune coincidental (although the mental sequence of *memory* of tune and *memory* of wife might well be called a causal relation of sorts). On the other hand, if every time someone played the tune his wife was physically conjured, we would suspect a causal connection. [15]

If we put all this in clear, formal language, all doubt is easily dissolved. Four forms may be distinguished:

a. X causes Y
b. X causes *the thought of* Y
c. *The thought of* X causes Y

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14 The converse is unlikely, i.e. that whenever he sees or remembers his wife, he is reminded of the tune. Unless the poor man is obsessed!

15 Here is a more common example of association. I glimpse a person, who faintly reminds me of Miss X, say. But it turns out on closer inspection that it was not Miss X which I just saw. Notwithstanding, given this occasion I start incidentally reflecting on Miss X, thinking of our last contact together, what we said, etc. These reminiscences may in turn give rise to new thoughts logically unrelated to Miss X, such as the present philosophical analysis of 'association'. And so forth, till I manage to change the subject.

d. *The thought of* X causes *the thought of* Y.

These four forms refer to very different relations, but all four have in common the relation "causes". The terms differ, but the copula remains the same. To prefer (as Hume does) one of these forms to the others, as the appropriate description of the events at hand, does not succeed in discrediting the common factor of causation, but on the contrary supports it. Hume's reasoning is self-defeating!

In my view, apparent causal relations may be real or illusory. Unlike Hume, I do not see the *fallibility* of our judgments about causal connection as proof of our *inability* to establish causal connection. In this context as with all other conceptual judgments, processes of generalization and particularization are involved. There are *two generalizations* involved, we might say. The first is *from observed particular conjunction to general conjunction* (including unobserved instances). The second is a generalization *from such constant conjunction of events to a presumed 'connection' between them* (i.e. something deeper and more forceful than mere conjunction). If we admit the (occasional, so long as empirically confirmed) validity of the first generalization, we may not deny it of the second process, which is *in principle* no different. We could only at best deny it *in specific cases*, as a particularization; though I

do not see how we might justify such a discrimination or partial particularization.

In other words, how does Hume himself know (granting that 'connection' is meaningful, though difficult to define in words) that 'constant conjunction' does not imply some deeper 'connection'? He can only consistently claim that it *sometimes* might not. But *in that case, his argument loses all its force*, which depends on generality. Nothing precludes us from formulating hypotheses about constant conjunction and about causal connection, provided we validate our theories in each case in accord with the rules of adduction, testing our propositions with reference to consistency and experience, and by comparison to alternative theses.

In addition to the above-mentioned physical sensations, our introspection suggests that 'we' have *some* degree of control over *some* of the physical movements of our body (and through it of other bodies) and over *some* of our mental imaginations. It is at this level, that of intuition (and not that of sensation), that the concept of volition arises. This inner cognition of self as actor in the mental and physical world may well ultimately turn out to be an illusion, but it must be granted credence at least to begin with as raw data. Any sincere claim like this has to be respectfully acknowledged, as an appearance to be taken into consideration in the overall arrangement of data. There is no methodological justification in outright denial (as indulged in by some dogmatic modern Mechanists).

Many experiences and abstractions, as well as intuitions, suggest volition. For instance, certain sensations depend on movement, be it movement of an object in the mouth, of one's skin against an object to feel its texture or mobility, torsion of one's body parts in different directions like the eyes for seeing or head for hearing, of a part of our body relative to the others such as an arm, walking through space to experience depth, or even speaking out to produce sound. Also, attention towards present phenomena, looking at the past or trying to forecast the future, all seem like acts of volition. Similarly, imagination, concept formation and logical insight are experienced as often calling for effort, or at least as acts of choice. Consequently, the concepts of time and space may be said to be dependent on volition. Similarly, volition seems involved in verbal thinking.

We undeniably have some sort of personal awareness that we have a certain power of action in the phenomenal environment. It is not an absolute and unlimited power, but it is 'felt' as there all the same. No sensible qualities can be said to *be* volitional acts; but many may be considered as *signs of* volition. Rather, we 'know' internally and directly whether or not our volition was involved, at least most of the time; it is an object of intuition. Indeed, this function is, together with cognition and affection, regarded by us as essential aspects of our identity. Volition is certainly an integral part of our logical discourse in sorting out other experiences, as for instance when we correlate different sense modalities. I

may for example formulate a proposition about perspective: ‘if I turn around this object, it will change shape thusly and thusly,’ projecting a volitional series (turning around object) and predicting a certain phenomenal sequence (visual and other changes).

3. EXPERIENCES AND ABSTRACTIONS

In the present chapter[16], we shall try and classify appearances in various ways (please refer to **Figures 1**, **2** and **3** for a useful summary and illustration). The objects of knowledge, contents of consciousness, or *appearances* to cognition, include: firstly, the concrete phenomena we perceive either through the senses or as mental projections; secondly, the concrete but non-phenomenal objects of intuition (self-knowledge); and thirdly, the abstract appearances we conceive through inductive and deductive logic in relation to the aforesaid experiences (i.e. phenomena and intuitions).

16 Some of these reflections are already to be found in my 1990 work, *Future Logic*. In 1998, after attending a lecture by Prof. Roberta de Monticelli at Geneva University on the phenomenology doctrine of Edmund Husserl, I wrote an essay summarizing and updating my own views. In 2002 (at about the same time as I was writing *Buddhist Illogic,* which was intended as a companion piece), I began rewriting it all, more fully and systematically, resulting in the present book.

1. The Objects of Perception

Perceptual objects, i.e. the 'things' we perceive, also called **percepts** or **phenomenal appearances**, are counted as **experiential** or **empirical data**, i.e. concrete (non-abstract) evident givens, on the basis of which knowledge is gradually constructed. Percepts are of two kinds (or sources), the material (or sensory) and the mental (or imaginary), which may be *phenomenologically* distinguished as follows.

(a) **Material phenomena** (or 'sensa') are at least *seemingly* perceived through the senses. They include the following appearances (and some of their components).

- **Visual** phenomena: the different intensities of light and colors (among which we discern various shapes, sizes, distances, directions) that seem to be perceived through the eyes (organs of sight).
- **Auditory** phenomena: sounds (including loudness, pitch, tonality, direction and other features), and sense of balance[17] (from which, bodily inclination)

17 The role of hearing in equilibrium is not immediately evident, and is I think historically a relatively late discovery. It is not the hearing organ *per se*, I am told, but another

that seem to be perceived through the ears, organs of hearing.

- The **olfactory** and **gustatory** experiences: odors (fragrant, pungent, fetid, etc.) sensed in nose (the smell organ), and flavors (salty, sweet, sour, bitter, etc.) sensed in mouth and tongue (the taste organs).[18]
- **Tactile** phenomena: the feelings we experience as 'within the body or on it (at the skin)' – contact, resistance to pressure/push and tension/pull (hard/soft, rigid/elastic, heavy/light), texture (rough/smooth), temperature (hot/cold skin or body), electricity (shocks), bodily posture (stand, sit, etc.), movement (of parts or all of body), and visceral pleasure and pain (or their lack, indifference), whether physically caused (sensational) or caused by mental phenomena (sentimental), which we classify as aspects of the sense of touch[19].

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mechanism in the ear, with liquid levels (whatever). The issue here is this: is there a *cognitive* act relative to these liquids, so that we can speak of sensation of a phenomenon; or is the 'information' (that's the wrong word, suggesting consciousness; I here use it as in computer science) simply directly transmitted to the brain as a *physical* process.

18 Some aspects of flavor (in common parlance, about food or drink) are more precisely odors.

19 Note that what we call the sense of touch is a grab-bag of very different functions. The term is effectively used in Western philosophy as an "all others" class. Its colloquial usage is narrower; here, "touching" refers to effecting a physical contact between part of one's body and some other

The field of material phenomena is subdivided into two spaces: one, experienced as close to oneself (the center of experience or observer) and relatively constant (for us, at least in the short term), is called '*one's body*'; and the other, lying further away and more variable, is called '*the environment*'. Both the physical body and the matter beyond it have visual, auditory, tactile, olfactory and gustatory manifestations.

Additionally, certain parts of the body, called the five '*senses*' or '*sense organs*', are regarded as specifically involved somehow in the perception of these manifestations. These organs, located roughly in the eyes, ears, nose, tongue, skin and inside the body, can be observed more precisely using scientific instruments (such as a microscope). They are found to be respectively comprised of mechanoreceptors (for touch, position, hearing), chemoreceptors (for taste, smell), photoreceptors (for vision), temperature receptors and

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part or body, and "feeling" refers to the resulting sensory experience. I see no utility in making this an issue here, one way or the other. It is up to biologists to decide on more precise classification. I would however stress the distinctiveness of inner bodily sensations (in the sex organs, in the digestive system, etc.) and sentiments (various emotional expressions) from mere touch sensations; the former feel more chemical than mechanical.

receptors for the sensations we recognize as pleasure and pain[20].

> That the sense organs are a *sine qua non* to material perception is evident from the fact that when such an organ is blocked temporarily, damaged, amputated or missing from birth, the corresponding perception is lacking or distorted. But the sense organs are *not alone sufficient* conditions of such perception: our attention to what they reveal is necessary too. Therefore, sensory perception cannot be *equated* to possession of sense organs. It is not the sense organs that perceive. One cannot rightly say that it is the eyes that see or the ears that hear.

Material objects are therefore classed as 'sensory', in contrast to 'mental' phenomena (considered below). The perceived body and sense organs are, of course, *themselves* mere appearances, although are later given a leading role in the mental-construct constituting the naive world-view. The above-listed five kinds of material phenomena are called the ***sense-modalities***[21], and their subcategories are called ***sense-qualities***.[22]

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20 According to Curtis and Barnes. They mention pain but not pleasure. Also note, they add that electro-receptors and magneto-receptors are found in some animals, though not in humans.

21 Needless to say, the word 'modality' as used here, to signify varieties of sensory and mental phenomena, is not to

> What is the common property of the various sense-modalities, and the various sense-qualities, which allows us to group them together under these common names? For example, something in front of me both has shape and color and makes a noise, why do I class the shape and color as sights and the noise as a sound? In truth, shape and color are as different in appearance from each other as sight and sound! Their common character has to be supposed merely relational. That is, we may classify them together not because of their intrinsic 'natures', but because they seem related to us observers by sensory experience, through certain bodily organs.

Note well however that the exact role of the senses in perception remains a mystery. For we have to affirm that we perceive what impinges at entrance of the senses, and not (as naïvely supposed by many) end products of transmission by the senses. Otherwise, we are faced with *a logical problem*: we are not perceiving the objects we

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be confused with the other sense, of necessary, possible or actual.

22 They are so-called, with reference to the ordinary, naïve-realist assumptions. But my using the word *sense* here is mere convenience, and not be taken to imply such assumptions. 'Sense-modalities' are the modalities of existence (light, sound, etc.) *thought to be* perceived by the senses; 'sense-qualities' are the subcategories of these modalities (e.g. for sight – shapes, light-intensities, color, etc.).

claim to perceive, but alleged images thereof. In the latter case, we have no way to compare such representations to their alleged origins, and even no right to suppose the 'original' objects existent. In which case, in turn, the sense organs, as themselves objects of perception, are put in doubt; which brings us full circle to a doubt of the initial premise that we perceive images of objects. But granting, therefore, that we perceive the objects themselves, the question arises: what is the use of the senses, then?[23]

(b) **Mental phenomena** are appearances resembling material phenomena, but which do not seem to be perceived through the sense organs. Thus, we should more precisely and broadly refer to ***phenomenal modalities*** (visual, auditory, etc.) and ***phenomenal qualities*** (shapes, light-intensities, colors, etc.), and regard the so-called sense modalities and qualities as referring specifically to those apparently manifested via the senses (the material ones).

Although individual mental phenomena seemingly exist independently of temporally simultaneous material ones, this does not exclude the possibility (which I believe[24])

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23 See *Future Logic*, chapter 62, for more discussion of this topic.

24 But the question can be resolved empirically. Does a born-blind man have visual imaginations or a born-deaf man have auditory imaginations? If not, then the mental sense-modalities are ultimately side-products of the material ones.

that they are only edited representations of *previously* encountered material phenomena (memories taken as a whole selectively, or taken as bits and pieces and reshuffled). For this reason, it seems proper to define mental phenomena negatively (as above done), as not arising directly through the senses, implying that they probably arise indirectly through creative *projection* of memories of material phenomena.

Mental phenomena are imaginations, projections that may be *involuntary or voluntary to various degrees*, including memories of recent or long-past events and **fantasies** of past, present and/or future events (the latter being anticipations). These may be brought forth for cognitive purposes, or for idle entertainment or other psychological motives. Among mental phenomena, then, we may to begin with distinguish the retrospective from the prospective.

Retrospective phenomena, or **memories**, appear as the past incarnations of the 'present moment,' which we assume to have unity and continuity of sorts with the present 'present moment' and to have been brought into the present through *a faculty of memory*. The consciousness of past claimed to be possible, directly or indirectly through this faculty, is called *remembering*.

(In *New Scientist*, No. 2416, of 11.10.2003, p. 85, Mary Cox of the Royal National Institute of the Blind, London, UK, suggests that the born-blind cannot visualize or dream. She does not say what specific research her statement is based on.)

> An automatic confidence in our ordinary interpretation of these phenomena would be naïve, but a renewed confidence after due reflection may legitimately occur. What matters to us here is that these phenomena take part *in the present*, and that they *seem* to refer us back into some 'past' existence. This dual presence and absence is a distinguishing feature of the class of retrospective phenomena. The explanations proposed for this mysterious quality of such phenomena (e.g. that we have a faculty of memory that somehow stores information obtained at other points of something called time[25]) require eventual evaluation.

Prospective phenomena, or **anticipations**, project specific scenarios regarding the future. They thus suggest that what we face in the present moment will have some sort of prolongation in the following moments. But we do not in this case posit for ourselves a faculty like memory; we only claim here at best an expectation that things will continue to be or become, and that other 'present moments' will replace the current one (till we 'die,' at least).

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25 Note that the occasional failure of memory is one proposition *within* this interpretative framework, to explain certain details.

> Just as our here and now is tainted, at least peripherally, with an awareness of a before, a past, so it is with a look forward, to a future, which is not quite part of the present and yet seems *potential* in it. Whether justified or not, what concerns us here is that these prospective phenomena take place in the present and yet refer to another extrapolation of what we call time, in a direction opposite to the objects of memory.

Both remembering and anticipation are essentially *inductive* forms of consciousness, note well, in that the Subject projects some interpretation on the basis of certain minimal data. The 'data' are the present phenomena (of apparent past existence or potential future existence, as the case may be), while the 'interpretations' include the acceptance of things pointed-to by these present phenomena as having some existence beyond the present (in a hypothetical past or future part of something called time). This is in contrast to sensory phenomena, which taken in themselves are devoid of theory (though starting points of theory).

> My inclusion of prospective phenomena in this list of components is a debt to Husserl. However, he does not see the inductive nature of anticipation, nor for that matter of remembering. Furthermore, I must add that awareness of these components is no 20th Century novelty. It is found in the mystic traditions (e.g. Meister Eckhart, in Christian mysticism, or to give an

Eastern example, in Zen Buddhism), wherever we are encouraged to "live in the eternal present" or to "be here now." What the latter make clear is that remembering and anticipation are not mere adjuncts to awareness of the present, requiring an effort; they are for some reason for most humans *compulsive* and very difficult to avoid. If one thinks about it, this is very surprising, and requires an explanation.[26]

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26 Why is it that we ordinarily live in a glorious or shameful past, or in a hopeful or frightening future, to the point that we lose all awareness of the present most of the time. Another, similar form of escape from the present is by *transcendence* in theoretical thoughts about the present. Rather than be in the present, we seem to almost automatically prefer to be out of it, in a constant stream of fantasies. This is evident in meditation, where we see that a serious effort is required to overcome this tendency. Even when we *want* to stay in the here and now, even when it is *pleasant*, we tend to fly off. Why? Phenomenology has to answer this question.

One obvious partial answer is biological. We have to anticipate the future, because we are volitional animals. We are called upon to make choices in relation to a changing environment, to protect our life and improve it. We have to remember the past, so as to avoid repeating its errors and so as to repeat the lessons learned in it. The present is interesting in both these respects, but it does not provide sufficient information. It remains true, however, that if we are unable to be fully in the present, then our past data is likely to be of equally poor quality and our future expectations also unrealistic.

Retrospective and prospective phenomena are conceived as mental projections made to some extent by their observer, and so have the initial status of **imaginations**. Indeed, both are essentially hypothetical, in that they are about things no longer or not yet present to sensory perception, and therefore (this is said without pejorative intent) uncertain as far as it is concerned. I expect, however, that the initial elements in memory of visual and auditory imagination are produced (in the recent or distant past) by sense-perceptions (sight and hearing, at least). This question might be resolved empirically by trying to ask people who are *born blind* or *born deaf* whether they, respectively, see or hear anything 'in their heads;' If, as I expect, they cannot, then the mental phenomenal modalities are ultimately side-products of the physical ones. If, as may be the case, they can imagine sights or sounds, then mental phenomena have independent genesis.

> Imagination (the projection of 'images') could also be called 'perceptualization.' More specifically, in the case of visual phenomena, we

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Incidentally, since I consider that higher animals, at least, also have some degree of volition (though less than that of humans), I regard them as (contrary to what many people assume) not entirely locked in the present. And I think their behavior demonstrates it; e.g. our pets remember us and can anticipate some approaching events. They have this ability to see beyond the immediate moment because they too must circulate in a changing environment, etc.

> say visualization; in the case of auditory ones, we could say 'auditorization;' similarly for the other cases, though there are doubts concerning them, as presently explained.

Memories and anticipations are classed as imaginations, note, even though their contents or *intentions* are not necessarily mental, but may relate to outside material events. Unless we suppose a *direct* awareness of remembered or forecast events across past or future time, we must regard them as in-themselves mental apparitions, even if their objects did or will indeed exist as projected in past or future, respectively. When their contents happen to be true, such mental acts may be viewed as indirect awareness of sorts.

As we shall see, imagination is a basic function of intelligence. The observer's creative capacity, to project images in or around himself, makes possible rational acts like comparison, confrontation and hypothesizing which are bases of conceptualization, and logical induction and deduction of propositions. In practice, imaginations are *rarely purely perceptual but usually involve conceptual and verbal factors*.

> Conversely, memories, fantasies and anticipations are never merely abstract or verbal, but always involve perceptual factors. Note in particular the various constituents of our hypothesizing, in everyday pursuit of knowledge. Ideas and theories are mentally formed in reaction to information and as attempts to predict further data. Such

> anticipations of reality (which have to be tested eventually, of course) include not only our words' intentions or conceptual contents, but a mass of concrete memories and fantasies, which may involve visual, auditory or other constructs, and of course the verbal aspect of our abstract thoughts.

Memories and anticipations involve concrete **visual** and **auditory**, and perhaps other, phenomenal modalities. Allegedly mental visual and auditory phenomena are not counted among the objects of alleged sensory origin, because they can seemingly[27] be experienced even with one's eyes shut or ears plugged, respectively. As for the sense-modalities other than sights and sounds, I am not sure that they are imaginable; their apparent imagination may just be an interpretation of present sensations (see below).

Another relevant feature of mental phenomena is that they are **intimate**, i.e. perceived by the observer only (colloquially, in the case of visual ones, through a 'mind's eye'), and although they do not seemingly interact with material phenomena, projections are experienced or at least regarded as due to an *agency* of the observer – signifying an act of will, a volition by a

27 I say 'seemingly' to remind us that eyes and ears are themselves mere phenomena, so that their materiality can only be concluded by our phenomenological ordering of data, not presumed *ab initio*.

supposed soul or spiritual entity (see further on). Imagination is not *per se* a case of 'mind over matter;' i.e. material objects (except perhaps the underlying brain) are not affected. Rather, we seem to create a hologram of dots, lines and shadings – and sounds, etc. – in our inner and/or outer mental space.

Mental phenomena may be **internal** or **external**, note well. Internal imaginations seem to be located (roughly) inside of one's 'head', *as if* they are projected onto some 'matrix' there constituting an inner space. In contrast, external imaginations seem to be projected out into the outer space occupied by matter, *seemingly* sharing the same extension and intermingling without however directly impinging on it (transparency). Clearly, external projection may involve 'extrapolation'[28]. We need not consider these two categories of imagination as fundamentally different: they may in fact inhabit the same transcendent space but simply be closer or further from the observer, respectively.

External mental phenomena may be quite commonplace *hallucinations*, like having the impression that one still

28 If someone projects an imaginary star into the sky, it does not follow that his power of projection extends that far. It may go no farther than his nose, and yet 'seem' millions of miles away by a verbal or implicit assumption of perspective. Indeed, when we see actual stars, we do not see the stars themselves, but the light-front from them impinging on our senses, and then assume a play of perspective.

has one's glasses on after removing them (one still 'sees' the frames, and does not just feel the residual pressure at one's temples). But there are more extreme manifestations, like meditative or psychotic or drug-induced hallucination[29]. For example, someone may claim to be a prophet who received the visit of an angel, but in fact just have a strong power of external projection[30].

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29 All of which are reported in literature, even if experienced by few ordinary individuals. A person who has not experienced them may of course doubt their existence, but if philosophy is to be a broad-based explication, it has to accept eyewitness reports as at least possibly true.

30 Phenomenologically, we call an entity 'tangible' if we experience, in the tactile mode, a feeling of solidity, i.e. pressure or tension (and usually other phenomena like texture, temperature, etc.), in the contiguous part of one's body. One's own body is itself considered tangible, by touching one part of it with another. Contact and shape are further ascertained and confirmed, normally by material visual experiences, or in the dark (and for blind people, I presume) by mental ones. Tangibility is also applied by extension to entities not directly touched, but interacting with touched ones, and so in principle capable of being touched. Ordinarily, an externally seen entity lacking any touch quality would be considered mere hallucination. However, some people claim that spirits (ghosts, angels, etc.), i.e. entities of a substance other than material or mental similar to that of the presumed soul of the Subject of consciousness, can be heard or seen, and (in some accounts) touched or otherwise felt. Clearly, if this were true we would have to expand and modify the present account of the phenomenal and our cognitive powers. I am sticking here to a normal viewpoint.

In addition to imaginations, we commonly tend to believe in another class of intimate mental phenomena, which might be referred to as '**mental feelings**,' including **moods**, perhaps **esthetic** responses, and other such subtle experiences[31]. These should not be confused with (although they may give rise to) psychosomatic sentiments, which we have already mentioned above and classified as material (in the sense that they occur viscerally in the body, though mentally caused)[32]. Whether we should count mental feelings as phenomenal, let alone existent, is open to debate. We could, so as to acknowledge common belief, hypothetically assume them to be perceptually discernible although very faintly

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31 If we allow for the existence of ***telepathy*** (which I tend to admit), I would possibly include it under this heading. For telepathy seems to be awareness to some extent of the 'thoughts' of others, that is their intimate mental world. If I imagine someone about to telephone me, and he does, I would interpret this not as foretelling a future or as 'X-ray vision,' but simply as 'hearing' the person's inner voice thinking "let's call Avi" after which I project an image of that person phoning. Thus, the mental domain might be shared to some extent. The explanation could of course be more material – perhaps we can sense electromagnetic waves emitted by others. (Some animals have receptors of electric and magnetic signals.) For this reason, I leave the issue open.

32 The distinction is thus based on presumed substance and location. Often, we are not sure whether what we are experiencing is physiological (purely physical 'sensations'), psychosomatic (mentally-caused physical 'sentiments') or mental (purely mental 'feelings').

and vaguely. Mental feelings, though diffuse, might phenomenally occur, like imaginations, in a mental space (extending in and around the head and body). Perhaps they are mental equivalents of material feelings, just as mental sights and sounds are equivalents of material ones. If the latter is true, then mental feelings can simply be classed as imaginations, and the parallelism between the material and mental domains is greatly increased.

> Another possible explanation of our knowledge of mental feelings might be with reference to intuition. In such perspective, they are merely expressions of the self, valuing what it has cognized with a view to eventual willing. They are not objective, in the sense of 'apart from' the self, but subjective, i.e. items of self-knowledge. (More on this topic below.)

Retrospective and prospective phenomena differ from sensory phenomena, in that the former are *re*presentative (they contain *for-other* claims, they have informational ambitions beyond themselves), whereas the latter are usually merely 'presentative' (they are to be taken *in-themselves*)[33]. All experiences are primarily data 'in-themselves,' and as such, no matter what their 'quality' (clarity, persistence, etc.), they are indubitable. Some experiences additionally appear as channels to other

33 These distinctions are explained in my *Future Logic*, chapter 60.4.

phenomena, as 'for-other' data, and in this role they are open to legitimate doubt.

Mental feelings (like feeling good about the world or finding a painting beautiful) and psychosomatic sentiments (like feeling warm love in your chest or fear in your stomach) may of course refer to something outside the one feeling them (i.e. may be 'referential'). In a sense, this may be counted as information about the object (specifically, in relation to the one feeling them). But feelings are not essentially intentional: they can be felt without knowledge of their object. Indeed, usually we experience a feeling, and then wonder what its object might be, and waste much time speculating, proposing alternative explanations.

(c) ***The distinction between matter and mind*** is open to discussion at this stage. Most people (at least those in our time and culture) regard matter and mind as different; this is considered a 'common-sense' fact. But in the 17th Century, the French philosopher Descartes put this seemingly obvious observation in doubt, suggesting that we have no way to tell the difference. I think he was in many respects right, but not entirely.

The *clear inner echo* of outer sights and sounds, our vivid short-term memory, is easy but of limited duration. The recall of longer-term memory of such phenomena is usually more difficult and approximate, as is the fantasy

of inner sights and sounds. The following is also evident (in my head, at least[34]):

Mental *visual* phenomena seem to be more vivid and clear while dreaming or in other special mental states, than they do while normally awake. In ordinary mental states, we can usually barely imagine (reproduce or produce) vague outlines and some flashes of color; our will has little control over our inner visions. Whereas in extraordinary states, such as in strong dreams[35] or in deep meditation[36] or psychosis or under the influence of strong psychotropic drugs like LSD, our visual experiences (be they spontaneous or willed) seem more three-dimensional, intense, precise and colorful.

Mental *auditory* phenomena, such as verbal thoughts, on the other hand, seem equally strong whether we are apparently awake or asleep, or in other mental states. Clear inner sounds are reproducible or producible at will in all mental states (except, of course, in exceptional cases of amnesia, sickness or brain damage).

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34 Though other people seem to have better powers of visualization than me judging by reports.

35 It is interesting to note, in this context, that dreams are largely involuntary events. The Subject is present during dream as observer of them, and to a certain extent may manipulate them half-consciously, but he cannot be said to be entirely there, as when awake. So we must say that some of the images in dreams are produced by the brain without volitional interference.

36 Presumably prophetic visions, like the very vivid ones reported by Ezekiel, count as ‘meditative’.

Thus, in the case of sights and sounds, there are notable similarities and differences between mind and matter, which justify our conventional dichotomy between these domains. With regard to *the other phenomenal modalities*, the differences are even greater – between apparently sensed objects, and short– or long-term memories of these, and imaginations awake or asleep or in other states.

It is seemingly impossible (in my mind, at least) to readily reproduce or produce in the mental domain phenomena equivalent to material sensations of smell, taste and touch (in the large sense), so their existence is debatable. This is at least true while awake: neither involuntarily nor at will do I ever recall or imagine, whether clearly or feebly, any of these three phenomenal modalities. I do not remember having experimented this issue while (that was long ago) under drugs, but it would be worth trying.

However, I have often noted seeming smells, tastes, touch-sensations and visceral sentiments in my dreams. However, the question always remains, did I in such cases experience these phenomena in the *mental* domain, or did my visual and auditory dream cause *physical* odors or flavors to be secreted by my body, or even just make me attentive to residual molecules in my nose and mouth, or in the surrounding air, which I then sensed and perhaps fancifully *interpreted* (verbally or by wordless intention) to fit a certain context, i.e. as required for the dream scenario under construction? There is a big

difference between mentally (from memory or by fantasy) projecting such phenomena, and mentally reinterpreting physical phenomena as mental phenomena.

> The issues involved can best be illustrated with reference to an erotic dream, because that usually involves all the phenomenal modalities. For example, suppose I dream of making love to a beautiful girl:
>
> When I awake, I get the impression that the visual and sound aspects of my dream (the girl's features, her verbal expressions of joy, etc.), and the smells (her skin), tastes (her saliva), touches (our bodies embracing) and emotions (our feelings for each other), were all *inside* the dream. But upon reflection, it seems to me rather that the two sources of information (the mental and physical) were in fact quite separate. Although some mental aspects may be stimulated by physical ones, and vice versa, each remains in its own domain. Only, we 'mix' them intellectually, so as to give ourselves the impression that they occur in the same domain.
>
> Her face and her voice have to be imagined by me, but the points of contact between us need not be imagined, because it suffices for me (in my sleep) to concentrate awareness on my lips or my sex organ to obtain an about equivalent sensation. I thus ask: were the feelings of having sexual intercourse with her and feeling love for her *in*

> my dreams (like the sights and sounds of it), or was I just feeling my sex organ *physically* rub my underwear and experiencing *newly* generated sentiments of desire and pleasure?

This question is difficult to answer, but as we shall see our apparent ability to 'recognize' such phenomena seems to logically require and imply admission of their mental 'reenactment' at least as faintly perceptible memories. Though perhaps such recognition can be explained entirely with reference to the intuitive faculty, somehow.

It thus seems evident that 'sensed materiality' and 'the mental stuff of dreams' are not quite as similar as Descartes and others imply, in their critique of the common-sense view. The two domains have *some* phenomena of light and sound in common, though not always of comparable quality (i.e. intensity and clarity), and certainly not with equal volitional properties. Other phenomena occurring in the material field have no apparent equivalent in the mental field. And so forth.

> Another difference worth noting is that the memory of dream experiences is usually more elusive and tenuous than the memory of awake experiences. Personally, upon awakening I may remember brief flashes of my dreams, but almost as soon as I try to remember more, I forget everything! However, it should be noted that, according to yoga teachings, one can train oneself to clearly recall dreams, by sustained daily effort

(including perhaps writing down what one does recall). Thus, my own ineptitude may just be due to my essentially indifferent attitude to dreams[37].

All this is, of course, very close to the common-sense view. What is the essence of 'materiality' if it is not precisely resistance to personal bodily pressure or pull[38], i.e. specifically a touch sensation upon contact between some part of one's body and another body (or another part of one's body). If this, as well as various other differences already mentioned, were equally producible 'in the mind' (at will or as memory recall) the domain of matter would not seem at all different to us from that of mind.

Thus, in conclusion, I very much doubt the Cartesian contention that the mental and material domains contain all similar phenomena. They simply do not. Matter and mind may have seemed indistinguishable due to a hasty generalization. An equation might be justified as a starting position, but has to soon be abandoned once a distinction between mind and matter is introduced to account for observed qualitative or behavioral

37 Which is probably unjustified, considering how surprisingly weird or richly imaginative dreams sometimes are. One wonders how a person ordinarily so incapable of spinning a story or composing a painting would suddenly in sleep succeed in such artistic feats!

38 Of course, later, Physics will explain the solidity and cohesiveness of physical entities with reference to fields of repulsion or attraction.

differences. If our above analysis of differences in the phenomenal modalities present in these two domains is correct, we would indeed be justified in distinguishing the mental matrix from the physical world as an explicatory hypothesis.

One *could*, even admitting the above objections, maintain that awake living might still be dreaming. Specifically, one could say that there are (at least) two kinds of dream, the *primary* dreams (which we call awake living) in which touch, smell and taste are experienced, and so on (listing all distinctive features), and *secondary* dreams (which we regard as occurring in sleep or under other specific conditions like drugs or natural chemical imbalances), which are dreams *within* the primary dreams, and which are distinguished by *a more limited range* of phenomenal modalities.

The position is consistent, so that Descartes' doubt remains legitimate, and even the idealistic posture of Berkeley and others. There is a Buddhist saying to the same effect, that: "Mind is a dream that can dream that it is not a dream."

However, one could upon further reflection argue that that position *involves a stolen concept*. The meaning of the words dream or mental is grasped *as against* the awake experience that we call materiality. If, as the Berkeleyan posture does, we dissolve the distinction, and call everything dream, then the word dream loses its initial meaning.

The whole impact of idealism (or mentalism or subjectivism), the provocation inherent in it, is due to our previous experiential grasp of materiality (as hardness, etc.) as distinct from mind-stuff; if we honestly *started* with the consideration of 'external objects' as mental just like 'inner objects,' there would be no shock value.

That is, there would be no *comprehensible* distinction between the words 'matter' and 'mind.' That we understand something different by each of those words shows that their content is different for us and justifies maintenance of a distinction. Matter may be a specific category of mind, or mind may equally well be a very subtle form of matter, but in any case they *as experienced* are qualitatively different objects in many respects, and those differences cannot legitimately be swept away in one go, as Berkeley and the like do.

2. The Objects of Intuition

Intuitive objects, i.e. the 'things' we intuit within ourselves, are also (as we shall now argue) to be counted as concretes, evident givens, or experiential or empirical data, on the basis of which knowledge is gradually constructed.

Our above attempt to parse experiential data into 'material' and parallel 'mental' phenomena of various modalities and qualities, is obviously incomplete, in that it does not reflect all the items found in ordinary belief (whether the latter is ultimately right or wrong). Many of our common abstract ideas and statements relate to more intimate data, not included in the above list. This suggests the need to postulate an additional class of objects, of immediately apparent particulars, like percepts (material or mental phenomena), and yet not as manifestly displayed (colorful, noisy, etc.). The type of consciousness by which such appearances may be supposed to be apprehended may here be called **intuition** or **apperception** (although in practice, note, people often broaden the term 'perception' to include such self-experience).

Under this heading, I here refer to things and events such as: one's own **cognition** (I know what I am experiencing

or thinking, what I currently believe or remember), **volition**[39] (I know what I willed, i.e. I was aware and remember I 'caused' the act), **imagination** (this is my imagination, I imagined it – even if in some cases I have had thoughts and dreams beyond my control), **valuation** (I like her, I want her, etc. – what might be called 'intuitive feelings,' leaving aside their eventual phenomenal effects, like feeling lust for her or enjoying sex with her), or again the intuitive sense of '**I**', of being an *observer, judge and actor* at the center of cognition, valuation, volition, imagination (I know that, I value this, I did so, I imagined so and so).[40]

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39 Volition has subclasses. *Intention to do* is a readiness for volition, to be carried out when opportunity arises. *Velleity* refers to inchoate volition, a beginning of volition not (or not yet) fully carried out. Velleity occurs under various circumstances: one may be indecisive or have conflicting wills, or one's will may be opposed by involuntary factors or tendencies. One or another force may dominate, and the losing volition is then called a velleity. These are details for Psychology to consider.

40 Many psychological concepts intermingle the broad classes of cognition, affection and volition. For instance, *imagination* is volition (as well perhaps as involuntary generation) of mental objects that are then perceived. *Intention* refers to the purpose of volitional action, and involves some imagination of the desired (valued) goal. Volition without intention is rare, if at all possible; the existence of *motiveless* voluntary actions (which might be called *whims*, non-pejoratively) is an issue. *Behavior-pattern* refers to a bundle of volitions. Again, *attitude* refers to a predisposition to volition, implying the possession of certain values, without implying

If we reify such presumed objects of cognition, we might be tempted to refer to them paradoxically as 'concrete abstracts' or 'conceptual percepts', or the like, because they seem to have a dual character, as it were straddling the domains of perception and conception, of concrete and abstract. More precisely, such apparently introspected certitudes (relating to 'oneself'), on the one hand resemble abstracts, in that they have *no expression in the listed sense-modalities*, but on the other hand they apparently share with phenomena the properties of *immediacy* (i.e. their being directly cognized, *without assistance of a reasoning process*) and *particularity* (they are *individual* objects, not common features). For this reason, it is best to regard them as a separate class of concrete objects, to be called intuitive appearances[41].

We are here considering the most inner of internal cognitions, where the observer observes himself (or herself) and his (or her) most intimate deeds – the awareness of anything, all volitions (i.e. the first move in all actions, be it the willing of imaginations or of bodily movements) and valuations (preferences, which are not actions but presumed inner *antecedents of* actions). Intuition differs from the objects of imagination (including memory and anticipation, eventually mental

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that it is currently put into action. *Character-trait* signifies a bundle of attitudes. And so forth. Cognition is of course a presupposition of all these concepts, at least for humans.

41 I hesitate to coin a neologism like 'appercepts.'

feelings), in that the latter are the *products* of the imaginative act, whereas intuition has as its object (among others) the presumable causes of the imaginative act, i.e. *the Agent and the agency*. Such intuitions constitute literally **subjective knowledge**, in a non-pejorative sense of 'in or part of the Subject', in comparison to which other mental events, viz. memories and fantasies of whatever sense-modality, are quite 'objective,' i.e. the latter are neither the Subject, nor creases or movements within him, though they are indeed often regarded as *caused by* the Subject.

> The pejorative sense of 'subjective' is of course that the Subject or consciousness cognizing something is thereby creating that thing (as one creates imaginations), and that this thing exists only in or through such artistic cognition. But if one says that *everything* cognized is imagination, it follows that this very statement about cognition is nothing but a fantasy too. So we cannot do that, logically; sure, we can put the words side by side, but their intended meaning is in fact self-contradictory. The correct view is therefore that *some* of the objects of cognition exist independently of cognition, they are objective. In this sense, not only are material and mental phenomena objective, but so are putative abstracts relating to matter or mind, and so even are the putative objects of self-knowledge (soul, cognitions, valuations and volitions). These are

all placed in the role of *objects* in the event of cognition, and could exist without such cognition (though in some cases their lifespan might well be equal to the duration of that cognitive act, of course).

'Introspection' in a broad sense includes apperception as well mental perception. Similarly, a broad concept of 'mind' would (and ordinarily does) include not only the mental phenomena listed earlier, but equally the observer him/her self and his/her most intimate expressions (awareness, willing, preferring), i.e. all objects of intuition. It may be that the latter are not essentially different from mental phenomena, i.e. that they display very fine, very subtle, very subliminal, very faint – almost but not totally imperceptible – phenomenal qualities; in that case, intuition would be regarded as a kind of deeper inner perception. I leave the question open.

Note well that to adduce such 'intuitive' objects is not to admit just any fanciful candidate for membership in their class. If it is legitimate to (at least hypothetically) admit *self-knowledge* as an additional faculty akin to perception, it does not follow that all other claims to intuition or intuitive appearances (such as direct awareness of God, or reading other people's minds, etc.) are offhand logically guaranteed (or excluded). In my view, we surely have to admit the observer's claims to direct knowledge (experience) of and about himself (or

herself); but with regard to other claims there is no such certainty.

> It is not because I see and feel my hand move that I think and claim I moved it – if I exist and moved my hand, then *I* have to know I moved it because my will to do so came from *me* (the hand movement being but a distant consequence of that). We give this kind of circular argument (which Buddhist philosophers would reject, denying existence of a self) merely to express that inner certainty, not as a justification thereof. It is here claimed to be evident data, not interpretation. Sometimes, such inner movements or states (metaphorically speaking) are uncertain; one may well honestly report "I don't you know if I believe or want or did so and so", but this too is a case of self-knowledge!

As earlier mentioned, Buddhists, presumably on the basis of their meditation experiences, claim that the self (and thus *its* having attributes and powers of agency) is an illusion, a conventional (i.e. conceptually generated) shell with nothing (emptiness, vacuity) at its center. Be that as it may[42], our interest here is to describe man's

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42 It is I hope clear that what is at issue here, when we speak of a Subject, is not the body or even personality traits of the presumed Subject. The body may be a receptacle of the Subject, over which he has special privileges, but it is not part of him. Personality refers to socially visible aspects, the body,

thinking processes as they appear within ordinary thinking, and these seem to include intuition of self and of expressions of self. Consciousness somehow appears to us as having a Subject; and cognitions, valuations and volitions somehow seem to 'belong to' and be 'acts of' that Subject. On this basis we construct propositions like I believe, I prefer, I do, etc. If such objects are not granted some credible reality and knowability[43], then all statements of this sort are meaningless and to be excluded at the outset from all human discourse. What shape grammar would then take, I do not know; no one

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its lines and motions, superficial attributes and actions. Character traits or behavioral tendencies, in contrast, may be considered more indicative of the Subject, in that we refer by them to certain uniformities in his attitudes and volitions over time.

43 A difficulty with the idea of self-knowledge is that it seems to require a *reflexive* relation. It is argued: an eye cannot see itself – so how can a Subject see himself or consciousness turn on itself? But the analogy here may be misleading – as eyes do not see anything, *we* see through them. A better analogy would be sensing one hand with the other hand. The soul or spirit may well be 'divisible', in that it can cognize a part of itself with another part (and therefore in stages all of itself)! I believe, for instance, that what we call (moral or intellectual) 'conscience' is precisely this: a part of each of us (big or small, depending on our personal predispositions) is reserved and assigned the regulatory task of overseeing the rest of one's states and acts. As for consciousness, we may regard the reflexive case as signifying more precisely: consciousness of consciousness of *something other than* consciousness (i.e. an iterative relation).

has proposed a convincing model. Fact is, philosophers who deny such propositions theoretically, nevertheless continue to discourse in such terms in practice!

3. Correlations between Experiences

We correlate experiences in various ways. There are apparent **correlations between sense-modalities**. This refers to the associations we record and rely on between sensations in the material domain, in various combinations. For example, the *sight* of my hand in contact with something with such and such a shape or texture is associated with the *touch* sensations that accompany it.

Very often, **correlation between the mental and material domains** is involved. In this respect, there are various possible combinations. One example is sight, visualization and touch: with my eyes closed, the visualization of my hand and an object held by it, is a *tool of interpretation* of the corresponding touch sensations. Another common complex involves sight, visualization, sound and 'auditorization:' I hear a sound apparently coming from a sight, the sight disappears from view, I associate the sound to a visualization instead; then the sound goes, I ally the images of sight and sound in my memory. Also, we have the 'gourmet' complex: the sensations in our mouth are not mere tasting, but a mix of visual images based on sight of the food before ingesting it, smelling, touch sensations of

shape, texture and movement, muscular sensations of mouth, tongue and throat movements, and even the sounds of chewing!

It is important to note that what at first sight seems like *direct* correlation between sensations is often *mediated* by mental projections. We often loosely speaking refer to the different phenomenal modalities of space. That is, there seems to be a visual space, an auditory space, a tactile space, etc. We have the impression that we know analogies of space through the various sensory organs, but it is not strictly speaking the case. We in fact mentally project visual space and its properties into the other sensory modes.

We localize the tactile phenomena in our body (contacts, pains, etc.) with reference to a visual image of the body. This image is based on our external visual perceptions (through the eyes) of the body, like a photograph in memory. When the eyes are closed (or simply unused or otherwise occupied), the visual image is inwardly projected in lieu of the actual eye-vision of the body. This is used as a coordinate system, through which ***we map*** touch sensations within our body or on its surface. For instance, close your eyes and put two fingertips apart on your desk; with regard only to touch sensations there is no distance between them, they are just two isolated events. You do not 'feel' the space between them, but rather interpose a space between them by imagination. Similarly, if you run a finger over your desk, it is only by *mentally* tracing a line between its various points of

contact with the desk that you can say that the finger had a continuous trajectory. The sounds we hear and other sensations may likewise be mapped in a mentally projected equivalent of space, extending out beyond one's body.

There are, of course, yet other correlations – equivalences and causal relations – between the mental and material domains. For instances, the relations between thoughts (verbal and non-verbal cogitations, based on immediate experience or memory) and sentiments (visceral feelings), or between emotions (evaluations and their mental and bodily expressions) and breath (as e.g. when it is speeded or deepened by desire or fear).

4. Conceptual Objects

The objects of conception, i.e. the 'things' we conceive, also called[44] **concepts** or **abstract appearances**, are *not* counted as empirical data (unlike percepts, and eventually objects of intuition) but must still be granted due consideration as appearances. Abstracts may be *phenomenologically* distinguished from material or mental concretes as having none of the phenomenal modalities – we cannot see them, hear them, smell them, taste them or feel them in any way, on a material or mental plane. Abstracts may also be distinguished from objects of intuition, in that they are not particulars. Abstracts are *the assumed common features or measures or degrees* of two or more percepts and/or intuited items

44 Note that it is inaccurate to use the term *noumenon* as equivalent to abstract (by analogy to the equation of phenomenon to concrete), as some people tend to do. The term noumenon refers to things hypothesized to exist beyond and in contradistinction (and even contradiction) to the phenomenal world, whereas abstracts are things existing in addition to and in harmony with concretes. The noumenal is a transcendental domain, claimed without justification to be ultimate reality; whereas the abstract is essentially immanent, part of our everyday reality knowable by ordinary means.

and/or other abstracts in simple or complex combinations.

> Not to confuse here, the ***words*** we conventionally, by intention, attach to abstracts, which thereby and thenceforth become for us the material and mental phenomenal manifestations *of* abstracts, tools to facilitate recording, storing and transmitting of information. Words may be facial expressions or bodily gestures, visible shapes or colors, hearable sounds or touchable epigraphs or Braille – but *what* they symbolize (their intended references or meanings) may have no phenomenal qualities and no intentions.

By 'abstract,' then, is simply meant any object of discourse other than the phenomenal or intuited. Many abstracts seem somehow almost 'given in experience,' and yet they cannot be pointed-to as clearly as experiences. For instance, 'squareness' is something we seem to see in all phenomenal squares, whether in the outside world or in our heads; yet we cannot show it except by drawing a sample square of particular size and color. We have no access to the *universal* except through *individuals*. Thus, the conceptual is in a sense apparent, like the experiential, but its epistemological status is inferior, because while the perceptual or intuitive is immediately accessible as a singular thing, the conceptual requires a plurality of data, out of which it is gradually differentiated by comparisons and contrasts between different parts of the field of appearance, and

more broadly between different fields of appearance over time.

We call abstract object of cognition any thing or relation we infer (or at least suppose or assume) by conceptual/logical means, including **terms, propositions** and **arguments**. Although they are *per se* imperceptible, and not intuited, abstracts may be (indeed ultimately have to be) associated to experiential phenomena. We might characterize them as ***rational*** objects, because *logical insight and discourse* are involved in their cognition[45]. They are end products of reasoning processes of varying type and complexity, (which may be hypothetical and probabilistic), based on and guided by (sensory or introspected) empirical evidence. What lies behind an abstract term like 'quark' or 'happiness' – what the term seems to us to refer to, what makes it meaningful to us – is what we reify as an 'abstract' thing. Like an experience, it is granted possible if not actual reality of sorts (while admitting that in specific cases, it can be shown that what we assumed was illusory – e.g. 'unicorn').

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45 I of course include here false insights or wrong logic – calling them rational is not intended as a blanket approval of all human discourse. That reason is fallible is not denied, only that it is sometimes correct and true is maintained. For to deny reason an *occasional* efficacy is self-contradictory, since such denial is itself attempted rational discourse.

It should be noted that I count ***logical insights*** (such as awareness that there is a conflict or harmony between different percepts, intuitions or concepts) as abstractions. They may be described as virtual 'sensations' of imbalance among certain appearances, whence arises in us an incredulity, a question requiring an answer, and equilibrium is recovered only when a convincing answer to the question seems found[46]. We feel 'compelled' by honesty to resolve logical issues when they arise. Logic is thus based on a certain affectivity, a capacity for intuition of our level of belief in or peace with certain appearances, within a specific context of knowledge and degree of attention.

If we have even a mere *impression* ('rightly' or 'wrongly') that a given experience or a given hypothesis is somewhat 'misplaced' or otherwise 'inappropriate,' this impression must be counted as part of the sum total of appearances on which judgment is to be based. It is with respect to all our impressions in a given moment (however

46 The logical insights of incredulity (negative) or conviction (positive) may be considered 'feelings;' but I doubt we may regard them as concrete feelings in the body or head (though they may occasionally produce sensible anxiety or satisfaction), they are rather to be classed as abstract and should be 'objectivized' as much as possible. In any case, it is clear that my view is far from a classical rationalism, which regards logic and feeling as opposites.

vague or clear, right or wrong to start with) that we develop considered judgments on any one of these impressions. It follows that we are correct (*ab initio*, at least) in counting logical insights as objective, in the sense that they belong to Appearance and not to the Subject. That we may also regard them as 'feelings,' or again as 'compulsions' of sorts, does not detract us from this position. It is not an arbitrary preference, but itself logically convincing.

Note well that logic is not, as some modern commentators have come to imagine, an issue of language or even of form (these are but technical aspects). It is primarily an apprehension of problems inherent in appearance (or between appearances), and of possible solutions to such problems. The problems and solutions are *themselves* apparent! Aristotle has identified three broad classes of logical issues. identity (acknowledgment of things as they present themselves), non-contradiction (conflicts between phenomena and their apparent resolutions) and the excluded middle (dealing with gaps in knowledge and otherwise unsatisfactory ideas).

Conception of the simplest sort has to begin with a **simple** insight, a direct consciousness of some abstract aspect of some perceived or intuited particulars. This position is needed to explain the comparisons and contrasts that determine conceptualization, and likewise

the logical confrontations that order knowledge. 'Similarity,' 'difference,' 'more or less,' 'contradiction,' 'consistency' and other such immediate objects, are obviously not perceptible or intuitive qualities, but undeniably abstract[47]. More **complex** conception is 'built up' from such simple conceptions, but not like bricks piled up on each other. Relations more complicated than mere 'addition' are involved, with terms inside terms, inside varieties of propositional forms, buttressed and intertwined by varied arguments.

Thus, the term abstraction should be understood very broadly as including simple insights and *summaries* of qualitative or quantitative similarity or difference between experiences; more complex conceptualization, *interpretations or explications* requiring adductive trial and error; propositional relations between concepts; logical insights, judgments and tests; deductive and inductive principles; specific logical methods and techniques of all kinds. Note well that abstraction is based, not only on similarities (as some philosophers absent-mindedly seem to suggest), but also on differences. *The negative aspect is as important as the positive*. Note that another factor, which I also often forget, is the insight of degree or proportion. Things not

47 And, I remind you, logically undeniable, since in the very attempt to deny them you use them and therefore contradict yourself.

only seem the 'same or different,' but also 'more, equally or less' this or that. A full account of comparison and contrast must mention this quantitative aspect, which is not reducible to the polar issue of mere qualitative presence or absence.

Abstracts are unconscionable without some sort of prior experience, be it material or mental perceptions or intuitions of self. *If we had never observed anything, we would have nothing to ever conceptualize.* This is a basic principle, thanks to which many errors can be avoided. Philosophers often *use a concept to criticize or deny the very percepts on which it was originally based*, committing a variant of the 'stolen concept' fallacy. If one keeps in mind the order of things in knowledge, one will not waste one's own and everyone else's time with such stupidity. Many philosophers, out of a failure to carefully observe and fairly evaluate cognitive processes, have fallen into skepticism and peddled confusions which have caused much damage in people's minds and in society. We shall in the course of the present research review some of our core assumptions with regard to abstract knowledge, with a view to justify it in principle. What will hopefully be made manifest is that the principal justification of abstraction is its grounding in empirical data; it is not something 'a priori' or 'transcendent.'

The essence of concepts is that they provide summaries, interpretations or explanations of phenomenal or intuitive particulars. Their primary orientation is thus more

objective than subjective, whether what they refer to is self or other. That is to say, when the Subject forms an abstraction about the self, it treats itself as a cognitive object like any other in that context. Also, although such comparison and contrast constitutes work by the Subject concerned, it does not follow that it is 'subjective creation;' it is dependent on a performance of the Subject, but it does not 'invent' its object.

The proposed ordering of the data, emerging from the activity of abstraction, is inevitably inductive as of when it takes longer than a single moment. For only what is given within a moment is pure evidence, whereas the putative links and other relations between moments are mere hypotheses confirmed by these moments (and others eventually), since as we have said beyond a given moment we depend on memories and anticipations. For this reason, the conceptual has a lower status than the empirical. Not as some suppose, "because the abstract is not inherent in the experiential," but because the extraction of concepts from percepts and intuitions depends on time-consuming and therefore potentially faulty processes.

Terms, propositions and arguments may therefore ultimately, all things considered, be found 'true' or 'false,' in one sense or another. The false ones may be deliberate pretenses, or sincere but unsuccessful attempts to report information. The fact that some abstractions are erroneous in no way justifies a skeptical judgment about abstraction as such, since *such judgment is itself abstract*.

No one can consistently advocate the elimination of all abstracts from human knowledge. One cannot even tell oneself (verbally or in wordless intention) to stop using them, since such comprehension or collective intention itself involves abstraction. *Some* abstracts must thus be logically admitted; the only question remaining is, *which?* If the basic abstracts of similarity and difference or of compatibility versus incompatibility are understood and thus granted, there is little reason for denying *other* abstracts – for *to deny some abstracts only does not have the same force as denying them all*.

Abstracts are the objects and outcomes of discourse, but should not be viewed solely in this perspective. Their epistemic role is not their whole story. They may be serious or playful, in the foreground of consciousness or in its background or underground. As already stated and as we shall see in more detail, abstracts involve and are usually in turn involved in imagination, meaning memory, fantasy, and anticipation; for instances, memory of their perceptual basis, fantasy of the words symbolizing them, or anticipation of hypotheses. Abstracts are also affected by and affect our innermost life; for instances, an emotional prejudice can affect one's philosophizing or a philosophy of self can modify one's choices.

5. Degrees of Interiority

It is important to note well, in the above dissertation, the implied degrees of interiority, with reference to 'distance' of events from the observer.

Five (or six) degrees of interiority are distinguished regarding **emotions or feelings** (taking such terms in their broadest sense), with (starting from the most distant):

(a) sensations felt when one touches something with one's skin or in one's mouth or nose (these might not be counted as emotions, but one is said to feel them);

(b) visceral sentiments, pleasures and pains experienced as *in the region of the body* (including the head), whether through purely physical causes (e.g. the pain of burned fingers or hunger or a stomach ache after eating something hard to digest or a headache due to noise) or due to mental causes (or psychosomatic – e.g. fear felt in one's solar plexus or sexual enjoyment or the warm feeling of love in one's chest);

(c) 'mental feelings,' i.e. concretely felt, not in any bodily location, but in the mental plane, if such things can be said to exist;

(d) eventual mental representations (as memories, imaginations, dreams) of these sensory (and possibly mental) experiences, thanks to which we can remember and recognize them, and often evoke them;
(e) the self-expressions of the Subject, the attitudes implied by velleities and volitions, the value-judgments or valuations implicit in his choices; and
(f) abstract implications of behavior and of introspected emotion (of the preceding four types), known by reasoning processes.

A particular emotion (mood, urge, whatever – any 'affection') to which we give a name, is usually *a complex of many or all of these types of feeling*, relatively concrete and passive ones like (a), (b), (c) or (d), or relatively abstract and active ones like (e) or (f). Rarely do we refer to ultimate units of emotion alone. By distinguishing the various meanings of 'emotion,' we are better able to analyze and understand particular emotions. For example, "I am in love with her" cannot be reduced to pleasant feelings in one's 'heart' or in one's sex organs or even to self-knowledge of one's abstract evaluation. 'Being in love' may mean that one experiences concrete sensations (the feel of her skin) and sentiments or mental feelings (pleasure, desire, admiration, pain, fear, guilt, shame, pity, etc.), while in contact with or when thinking of the person concerned, or it may refer to a very platonic direct (I like her) or indirect (she's nice, worthy of love)

evaluation and a resolve to a certain line of action (doing good to the person loved), or both (usually). One's consequent voluntary and involuntary actions (over a long term) would also be considered important empirical tests and indices, relative to which one could objectively judge whether and to what degree love effectively exists or is pretentiously claimed (a fantasy).

The knot of emotions may, for instance, be iterative, with observation of certain conjunctions of sentiments or deeds causing additional sentiments (for instance, one may feel guilt in view of one's desiring or kissing someone). Also, one may have conflicting emotions; there is no 'law of non-contradiction' with reference to emotions. 'I like X' and 'I dislike X' (or 'I like non-X') are not considered logically contradictory but merely, say, incoherent or at odds, in that they call on ultimately mutually destructive courses of action (cross-purposes). That is, 'I like X' (in a given respect and time) denies 'I do not like X', but does not logically imply 'I do not dislike X' (or 'I do not like non-X'). We view the soul as potentially 'a house divided', with parts of it inclining one way and others inclining other ways. Indeed, our psychology is built on fragmentation between our 'conscience' charged with moral supervision (to different extents, according to the person – some may even have no such reserved segment of self) and our impulsive tendencies (which conscience may disapprove).

Returning to degrees of interiority, the same distinctions apply to the allied faculties of the human psyche. We

have of course **cognition** of the five or six types of 'emotion' listed above – they do not just exist, they are cognized by the Subject. And similarly, **volition** can be viewed at various levels or depths. If I move my hand, I can focus on the tactile or visual sensations of my hand, the feeling and sight of its motion, or the pleasure or pain such motion may give rise to, or the visual imagination of my hand moving (with eyes closed), or the purpose or causes of its movement (i.e. on the mentally projected achievement sought by such movement, or on the conceptually supposed processes by which it occurs), or lastly on the intuited act of willing. A particular volition may involve any or all of these aspects.

Strictly-speaking only the most inner act of willing, known by self-knowledge, may be labeled as volition – all subsequent events are regarded as mere effects of it, mental or physical reactions to it. The will is never involuntary, only imagination or bodily movement can be involuntary. In the mental realm, images can be projected involuntarily, as in dreams. In the physical realm, forces outside the body can move it and it may have internal dysfunctions (e.g. paralysis) or missing organs (e.g. a cut hand). Whereas the presumed will (within a limited range) is always within our power, a free act of the soul, and the first act in any 'volitional' series. Thus, volition as such is regarded as a spiritual act impinging on the other two domains, the mental matrix of imagination (which matter can also impinge on) or on

matter (which imagination per se cannot however impinge on).

These domains cannot directly or mechanically impinge on the spiritual, but only through their cognitions by the Subject. *Cognition* is always (or at least usually) antecedent to volition, giving the Subject issues to respond to, but not determining the response. Cognition gives rise to value judgments and attitudes of the Subject, i.e. events in the spiritual realm. But even these subjective antecedents of volitional action do not definitively determine volition; the Subject still has to will an action in the direction they suggest. Cognition (and its objects) and valuation (or more broadly, emotion) are thus said to '*influence*' actions (make them more likely than others), but only volition can be said to *determine* actions. 'Volition', thus, refers most precisely to subjective movements of the Subject – he is their sole cause, in the sense of *Agent* (or Author or Actor). Such movements have no existence without the Subject, they are not end products of his acts, they *are* his acts. He is directly responsible for them, their perpetrator. Subsequent events (e.g. hand moving) are not volitions, but (usual) effects of volition, though loosely called 'volitional'. For the latter, he has (usually) only indirect responsibility, for other forces can affect them.

By means of the stratification of objects here proposed, we are better able to understand what we mean by freedom of the will. But deeper considerations of

causality and causal judgments shall be dealt with separately.

4. CONCEPTUALIZATION

In the present chapter, we shall try and clarify the processes of conceptualization, i.e. how we develop abstract ideas from the data of experience. Many philosophers have previously attempted this difficult task, but have strayed into error or irrelevancy due to their failure to grasp all the logical issues involved. We need to explain how comparisons and contrasts are effected, without engaging in circular reasoning. We need to show that logical tests are not arbitrary standards, as some accuse, but constitute the only honest and sane way to assess any data input. We need to clarify verbalization, and ensure that it does not skew our ideas. We may also try and propose a theory of 'universals.'

1. Sameness and Difference

Alleged apprehensions of sameness and difference are the primordial basis of all concept-formation, that is of grouping and naming or classification. These are of two kinds, *particular* sameness or difference, which relate to purely perceptual (material or mental) or intuitive (self-known) items; and later *abstract* sameness or difference, which relate to conceptual products of the former. Or we could say more precisely, sameness and difference on a particular level are the foundations of abstraction, i.e. whatever we judge same to each other and different from other things become thereby members of the *first* abstracts, all others being ultimately *derived* from them.

An important insight or principle we may suggest at the outset is that **similarity is not something we apprehend – it is *dis*similarity we apprehend; similarity is just the absence of dissimilarity**. Thus, despite the polarities we have given the words, similarity is something negative, whereas dissimilarity is something positive. Everything seems the same to us, till we discern some difference. We judge things singular or same, if we have noticed no plurality or difference between them. Thus, strictly speaking, dissimilarity can be experienced, whereas similarity is a rational object.

Let us first consider certain percepts (material or mental objects of perception) in the visual field (specifically, shapes), and then we shall turn to other visual percepts, as well as auditory percepts and those in other sense-modalities.

When faced with two visible *material* percepts (phenomena appearing *at the same time* in the visual field), we 'compare' them mainly by mentally projecting (externally imagining) parallel lines from points on the one to points on the other (the points being imagined subdivisions of the phenomena, into light or dark dots – digital 1s and 0s). If all such lines pair-off dots which are both alight or both dark, the objects are judged to be completely similar (identical); if no dots thus correspond, the objects are judged completely different, if only some correspond, the objects are judged in some respects *same* (similar) and in other respects *different* (dissimilar). There are thus *degrees* of sameness or difference.

Such **comparison** (in its widest sense, including both comparison with the positive aim of finding points of similarity and that with the negative aim of finding points of dissimilarity, i.e. 'contrast') thus involves an imaginative act (specifically, a hallucination of mental lines into the material region of space), but its result is given by the visual phenomenon (there evidently are or are not pairs of light or dark dots at the two ends of the lines).

Another, less direct way we compare visual material objects is by externally projecting a mental image of one

object (usually one perceived previously, whose image is thus stored in memory) onto the other material object (currently present in the visual field). Such *juxtaposition* primarily occurs when the two material objects are not simultaneously present, or so far apart in space that focusing on one turns one's attention away from the other so that they cannot strictly be regarded as sharing the same visual field at the same time. In such case, we overlay an image of one object on the other, and consider and count how many dots cover each other over and how many do not[48]. Here again, an imaginative act is involved (projection into external space of a mental image or memory), but the judgment is based on passive observations.

A third, still less direct way is to compare and contrast mental images of both the material objects under scrutiny – this may be used for instance if neither object is present long enough, both being too ephemeral. Other ways are experimental: the observer may seemingly move himself relative to the two objects so that they are in the same line of vision (appeal to perspective) or seemingly move one object so that it is physically on top of the other and

48 In such case the mental projection does not entirely blank out an identical material object, but effectively hides it sufficiently.

blanks it out in every direction[49]. Such physical experiments do not per se involve mental projections.

In practice, all these various ways might be used in combinations, reinforcing each other or mitigating our judgments somewhat (as to the degree of similarity and dissimilarity). Physical experiments may be criticized as actually changing the visual field, in that what is compared after said movement is not the original scene, but a new scene – in which case, we have to in fact appeal to a memory (i.e. a mental image) of the object moved, juxtaposed on its alleged new manifestation, and judge the two as the same by an inference (image 1 is like object 1 and like/unlike object 2, therefore objects 1 & 2 are like/unlike). Therefore, even such experimental comparisons involve imagination.

In addition to comparisons of shape, we must consider comparisons of size – that is, the *measures* or *degrees* of things. Two things may have the same shape, but different sizes. To deal with this problem, we introduce the concept of *proportion*. Comparative measurement is an experimental act in that, in imagination or physically,

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49 The smaller one will be placed relatively closer to the observer than the larger one, and both may be gradually rotated, so that all their 'sides' are effectively juxtaposed and compared. Such manipulations are regarded as mere *positioning* of the objects, and granting the hypotheses underlying perspective including continuity of adjacent phenomena the objects themselves are not affected thereby.

we bring to bear a standard of measurement, a graduated measuring rod. In visual imagination this simply means that, instead of comparing dots (as above), we compare collections of dots – dashes (lines of two or more points), while ignoring or making note of the differences in their numbers of constituent dots (according as we are satisfied with imprecise proportions or need to be exact). Considerations of 'scale' often involve a mental act of 'zooming in.' In *Buddhist Illogic*[50], I state:

> Now, the zooming in is merely production of a new image – so we are not even, in fact, repeatedly subdividing the same image; we merely *say* 'suppose this image is a detail of the preceding.' The new image has the same size as the preceding, but its *scale* is declared different.

It is worth stressing here that this declaration need not be verbal, and is more precisely *an intention*. That is, we intend some visualized line to be considered as *a portion* of another visualized line, even though both lines are in fact (about) the *same* size when projected in our heads. Neither the mental projection of images, nor a verbal declaration, can fully explain 'proportion' – we additionally must, note well, refer to the *intuited* intention that this line 'represents' a fraction of that line. Thereafter, we can specify how many such fractions would equal the whole.

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50 In chapter 5.

The mental drawing of lines first mentioned may also be criticized as taking time and involving shifts of attention, so that by the time the lines are drawn it is no longer the original two objects that we are comparing but our many mental images (memories) of them. However, these various images have each in succession passed the test of correspondence with their original objects (image 1 matches object 1, image 2 matches object 2) – we express this fact by calling them '*representative*' – so that we may justly infer the resulting judgment (that objects 1 & 2 are the same/different) from the equality or inequality of their images. In conclusion, the comparison and contrast of material objects may well generally involve mental projection of images of their objects, though many rely mainly on projection of lines between objects too.

It should be mentioned that visual experiences do not only involve shapes, but also light-intensity (shadings) and frequency (colors*)*. How for instance do we recognize various colors as all green, say, although they range noticeably? For such qualities, an argument by analogy seems called for. It is also by analogy that we must here try to explain comparisons with respect to the experiential fields of *the other sense-modalities*, sounds, smells, tastes and touch phenomena. Presumably, we mentally cut up the experiences into elementary phenomena, which we then compare to each other or to imaginary substitutes, or experimentally determine in some way (e.g. at later stages in development, we could

record sounds into a computer and have it project on its screen visible waves which mathematically correspond to the sound waves concerned).[51]

Whereas material phenomena of light or sound have obvious mental equivalents – we can think visual images (including colors) or speak to oneself (i.e. in one's head) at will – it is not immediately evident that we can produce mental images (memories) of smell, taste and touch phenomena at will while awake (though my own introspections suggest they do occur in dreams while asleep). Be that as it may, unless we can think up some fitting alternative theoretical scenario, we have to assume the doctrine that imagination (or at least memory) of

51 It should be kept in mind, in this context, that color, sound, odors, tastes, touch-sensations and feelings all seem to have spatial as well as temporal aspects, which give rise to our *correlations of sense-modalities*. Thus, the sense of depth in the surrounding material world is not only due to perceptions and conceptions of perspective, but also to various sound and touch sensations, which add body to visual depth. The sounds or smells we experience have direction, with reference to movements of their external source in space or of our body relative to it. The food we eat has a location and shape/size and texture in our mouths and tongues, a hardness or softness and certain sounds under our teeth, not just a taste and smell. Such inferences of spatiality are based on very complex hypotheses involving both perceptual events and conceptually assumed causes and conditions.

these sense-modalities is possible, since we evidently are able to *recognize* such phenomena![52]

We should also consider comparison of *mental* objects of perception. With regard to the visual field, first, internal or external imagination of lines, joined at will from point to point of any two objects, would be a sufficient hypothesis. There is no logical need, here, to produce a mental image of either mental image, since just as soon as the primary mental objects are thought of (with a view to compare them) they are present in the mental visual field and such imagination would be redundant. But one can, rather than mentally draw lines between them, mentally move one mental object over to the other, juxtaposing them for point-by-point confirmation of similarity or difference. Such moving seemingly does not require further confirmation by images, since it is as it were guaranteed by the observer's introspected will. Similarly supposedly for the other sense-modalities.

Comparisons and contrasts between intuited particulars, on the basis of which abstracts concerning the psyche are

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52 For instance, I can recognize a smell as that of a rose, i.e. as similar to smells previously experienced and classified as rose, even though I don't seem to be able to reproduce an 'image' of that *smell* in my head at will. But interestingly, in a dream I might apparently 'smell' a rose, though none is nearby. No doubt also, different people have different facilities in respect of perceptualization. I am sure some people can visualize things in their heads better than me, so maybe some can actually imagine the smell of a rose.

assumed, are more difficult to trace. They evidently occur introspectively somehow, but I cannot at this stage suggest just how, so I will leave the issue wide open.

The above-mentioned first abstracts are only among the most basic. From their application a whole world of more specific or generic abstracts is gradually inferred, adduced or assumed. For example, there are also, we assume by analogy from phenomenal and intuitive feelings, 'abstract feelings' inferred from the value judgments and behavior patterns of the observer. These are not to be confused with pleasure/pain[53] sentiments (which are physiological phenomena, i.e. concrete material phenomena experienced within the body), which may occasionally be caused (we believe) by abstract feelings. Nor should we confuse these with what I have earlier named 'mental feelings' (if any such exist) and

53 *Indifference* is sometimes counted as a third kind of sentiment, though strictly referring to lack of sentiment. That is of course because the absence of pleasure or pain signifies underlying value-judgments that exclude interest by the Subject in the object concerned. Additionally, we should note that some sentiments are of *uncertain* polarity, i.e. we find it difficult to say whether they are pleasure, pain or perhaps both at once. This is said apart from the fact that one thing may *cause* opposite sentiments, as e.g. when a masochist is whipped and feels both pain in his back and sexual pleasure. I here mean that one and the same sentiment may be ambiguous (so that the Law of Non-contradiction may not be applicable with reference to pleasure and pain, i.e. they are not strict contraries). Similarly, and all the more so, with regard to abstract feelings.

'intuitive feelings' (which are raw data for abstraction). Abstract feelings are hypothetical entities, stretching terms by analogy; they are more judgmental, or rational in nature.

With regard to cognition of more abstract sameness or difference, then, we should in principle regard our identifications as *hypotheses subject to the laws of adduction*. The concepts of concrete sameness and difference are by analogy extended to include presumed/alleged/postulated abstract sameness and difference. We do not directly 'see' abstracts as same or different, as we do concretes. Rather, we postulate that something akin to sameness or difference relates two given abstracts (respectively inferred as above described), and then test this theory by adductively confirming or rejecting it, in competition with conceivable alternatives. The process of comparison is here less direct, and less permanently sure in its results.

In practice, the objects we compare are rarely simple visual shapes, but complexes with many aspects. All the above-described concrete processes, and additionally many abstract ones, will be called upon in tandem for any given act of comparison. So it is difficult to describe comparison in a succinct manner. For instance, let us compare two carpets on my living room floor. I can basically relate them in respect of their rectangularity by drawing lines from the corners of the one to those of the other. This is possible even if they are different in size or differently placed, by calling on perspective adjustments.

But if one were round and the other square, this would be inconclusive, and I would have to refer to their color or texture (a touch phenomenon), or more abstractly to their fabric (wool or cotton) or even their function (warmth, decoration, etc.). Or comparing two trees, I would not expect their overall shape to be always similar, but would refer instead to bark and leaves, or cells viewed under a microscope, or more abstractly to observed biological processes (themselves complex).

In conclusion, sameness or difference are geometrical judgments at the simplest concrete level of visible shape, but at more complex levels, other sense-modalities as well as abstract hypotheses and inferences (themselves somewhat based on previous concrete experiences) are generally taken into consideration in determining sameness and difference[54]. Nevertheless, I have attempted here to postulate a scenario, which would credibly explain how we apprehend sameness or difference, already to some extent, at the simplest concrete level. I personally see no alternative explanation yet, and so regard it as a good working hypothesis,

54 How precisely that occurs with regard to the other sense-modalities is admittedly left vague. We should regard comparisons and contrasts in these sense-modalities to be less reliable. Ultimately, I think, we have to refer to a theory that these other sense-modalities consist of vibrations subliminally perceptible to some degree by being somehow reducible to light phenomena, comparable with reference to correspondence of dots. Similarly with regard to intuitions.

justifying our comparisons (to the extent that we have been attentive enough, of course). It is acknowledged, however, that even apparently simple cases are usually far more complex in fact, and it is difficult to describe such processes precisely, as they vary tremendously (involving many sense-modalities, and conceptual/logical work too).

Direct or indirect comparison/contrast may be considered as principles of logic, insofar as it is on their basis that we begin conceptualization. Once percepts of any kind are thus declared same or different in certain or all respects, we mentally *group* their images in our minds (probably more precisely, link their memories in the networks of our brains) and, usually but not always, *label* them with a name (i.e. a physical or imaginary sound – and in the case of written language, a visual symbol). The value or utility of naming is that it provides us with an easily invoked substitute for experiences difficult to bring to mind (like smells, tastes or touch phenomena) or more abstract concepts.

> It must be emphasized that the mystery of sameness and difference cannot (as some philosophers have tried) be explained-away by just saying that the arbitrary names we give to things are their only common grounds. Logically, this hypothesis begs the question, in that names *too* have individual instances, which must be judged same or different!

The prime concepts resulting from such grouping and naming (effectively these are propositions, like ‘x is same to y, therefore both shall be symbolized by z’) may then serve as objects in eventual derivative ‘abstract’ comparisons, which in turn may yield more abstract ones still, as classification progresses higher or deeper. It should be clear, at least if the above explanations are naturally convincing, that the role of imagination in comparison processes does not detract from the *objectivity* of the sameness or difference concluded. The mental projections involved do not affect the material objects they try to represent (and are shown to do so by matching) – they are not ‘mind over matter’ type volitions, arbitrary manipulations – they are merely juxtaposed. For this reason, we can fairly regard our prime concepts (and their eventual derivatives by inductive logic) as ‘empirically’ based and epistemologically justified.

2. Compatibility or Incompatibility

Allied to sameness and difference are the concepts of compatibility or incompatibility, which underlie what Aristotle has called the three 'laws of thought' – identity, non-contradiction and exclusion-of-the-middle. How do we apprehend things (percepts, intuitions, concepts and propositions about them) as able to coexist (compatible) or as unable to do so (incompatible) or problematic (not established as either compatible or incompatible)? We must answer this question urgently, if we admit that these logical processes of **confrontation** (or facing-off) are as basic as those of identifying sameness or difference. The whole of logical science is built on their assumption, and we must explain how we know two things to be harmonious or mutually exclusive or of undecided correlation.

An important insight or principle we may suggest at the outset is that **consistency is not something we apprehend – it is *in*consistency we apprehend; consistency is just the absence of inconsistency**. Thus, despite the polarities we have given the words, compatibility is something negative, whereas incompatibility is something positive. Everything seems harmonious to us, till we discern some conflict. We judge

things consistent, so long as we have no logical insight of inconsistency between them. Thus, strictly speaking, inconsistency can be directly 'seen', whereas consistency is normally assumed till found lacking. In some cases, consistency is indirectly put in doubt, without some direct inconsistency having been found, so that an uncertainty arises.

Aristotle formulated his three 'laws' firstly with reference to percepts or concepts by stating them as 'A is A', 'A cannot be non-A' and 'Either A or non-A'. In a later stage, they are formulated with reference to propositions. As I argue extensively in *Future Logic*[55], these laws are not laws in the sense of a-priori principles or arbitrary axioms, as some have claimed, though they are self-evident in that to deny them is self-contradictory[56], but have to be regarded as given in their objects somehow. Psychologically, they are profound impulses (which may be ignored or followed), which make humans rational; ethically (in the ethics of knowledge gathering), they are indispensable tools and imperatives to actively respond to certain epistemic situations in certain ways (though one can be dishonest or unaware and ignore the facts, or evasive or lazy and ignore the imperative).

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55 See *Future Logic*, chapters 2 and 20.

56 See *Future Logic*, chapter 31.

Identity brings to mind the visual image and sensation of calm or attraction or a tendency to merge of two things (equation), contradiction that of conflict or repulsion or explosive collision between them (because they cannot occupy the same place), while exclusion of the middle refers to a gap or deficiency between them (raising doubts and awakening questions). These may be imaginative representations for philosophical discussion like here, but they are not always (if ever) involved in concrete identification of identity, contradiction or research needs. Their involvement is more technical or abstract, straddling as it were the experiential domain and the conceptual knowledge domain. Although formulated as a triad, the laws of thought are three aspects of essentially one and the same necessity.

The law of identity, simply put, tells us "what you see is what you get" – it is a mere acknowledgment that the data of phenomenal experience are the fundamental givens of any knowledge enterprise; that there is ultimately no other data to base inference on, so that all their details must be paid attention to and taken into consideration in any inference. With respect to its formulation as 'A is A', with reference to terms rather than propositions, this law would simply mean that, if we for instance compare the constituent points in any two material or mental complex phenomena, we have to acknowledge that wherever dots *appear* (or fail to appear) to us, we can definitively say that there *are* (or are not, respectively) dots (at least phenomenal dots) – at

least for now, until if ever the situation changes or further scrutiny tends to belie the first observation (because many later observations supplant the first, by their statistical weight).

Identity is a law, because there is no other way to conceive things – *at this phenomenal level to 'seem' is to 'be'*. You can deny your phenomenon's reality, but not its very occurrence or existence. If you try to deny your actual phenomenon by *immediately* hypothesizing some invisible conflicting 'phenomenon' behind it (a noumenon, to use Kant's word), you are condemned to being basically unempirical and therefore without epistemological justification for your own act. You have nothing to show for your case, since by definition you appeal to the *un*seen, *whereas you must acknowledge the seen as seen to at all deny it*. The baselessness and circularity of such refusal to accept the phenomenon (*as* a phenomenon, no more, at least) merely reflects that the phenomenon experienced is the given to deal with in the first place (for this reason any denial of it is bound to admit it, implicitly and explicitly by referring to it). All such argumentation is of course very conceptual, and so only at best lately and peripherally significant in any actual act of acceptance of the phenomenon as such.

Phenomenologically, the law of identity means that an image of a material entity, mentally projected externally onto that entity, does not blank out the entity (being as it were in a parallel space, transparent). When such mental image seemingly shares outer space with the material

body it is projected on, then the phenomenon as a whole has changed, though the material entity stays on (perseveres as an appearance), having been *augmented* in respect of a mental image. That is, the new phenomenon is enlarged (by an additional image) in comparison to the originally given phenomenon. This means that postulation of a noumenon merely adds a mental component (including additional phenomena) to the first presented phenomenon, and does not succeed in erasing the first phenomenon, precisely because it is introduced *in relation to* the first phenomenon (specifically, as an attempt to explain it or explain it away).

The law of identity is an impulse, a call to empiricism, which we normally obey without doubt or question. It acknowledges that appearances might in the long run change or prove misleading, taking into consideration all other appearances. It does not deny, nor accept *ab initio*, that behind the seen appearance there might be unseen or invisible events or things; but such outcome can only be arrived at through an overall consideration of all experiences and much pondering. That is, 'noumena' might well exist beyond a given field of phenomena – but they would have to be end products of an evaluative process and could not be first assumptions. Since evoking noumena does not in itself annul phenomena (merely adding more phenomena to them), the questions inherent in phenomena and their apparition to us remain unanswered.

The reason why the thesis of noumena seems at first sight credible, is that we have experience of different sense-modalities, each implying that the others are *incomplete*, and we have memory of changes in our experience and/or its interpretation *over time*, so that our conceptual knowledge (or its suppositions) has naturally come to conclusions that '*things are not quite or always what they seem*'. But in such case, the term noumenon is trivially but another name for abstracts or concepts. In Kant's coinage and use of the term, however, the noumenon is not a hidden extension of the phenomenon, but purports to discard and replace the phenomenon altogether. The noumenon is by definition unknowable (universally) – though Kantians never tell us how come *they* themselves have the privilege to even know enough *about* it to know that it exists and is unknowable! The correct statement would rather be that noumena (i.e. less abstrusely, abstracts, concepts) are not concrete experiences, but merely logically assumed derivatives of percepts. They are hoped to be ontologically 'more real' than percepts, digging deeper into reality than the visible surface of things (to which we are supposedly restricted somewhat by the limited range of sense-modalities open to cognition), even as they are epistemologically admitted to be less reliable.

The laws of non-contradiction and of the excluded middle are intertwined with that of identity, as evident in the arguments above. But how do we know that 'A is not non-A' or that it is either-or between them? Consider our basic dot of light or its absence (darkness) in the visual field – such a dot is evidently never in contradiction with itself. We never simultaneously perceive a dot and not-perceive it – in any given place we mentally chose to focus on, there either appears or does not appear a lighted (or dark) dot. At this level, where the object is reduced to a single character (light) and precise place (the smallest possible size), we cannot *honestly, sincerely* answer 'yes and no' or 'neither yes nor no' to the question. It is there or it is not. If it seems there, it is. If it does not seem there, it is not. We cannot even pretend we don't see what we see – at least not in words, for we would have to acknowledge their meanings, and therefore the actual phenomenon.

These laws are indeed *in* the phenomenal world, insofar as positively no phenomena ever appear in contradiction or as neither-nor, i.e. by *absence* of empirical evidence to the contrary. They are in, because their negations are *not* in. But they relate to mind, inasmuch as when a dot A appears and we start speaking of the unseen non-A, *we are in fact imagining non-A in our heads*, and so bring a new (mental) element into the picture. By the law of identity, this non-A phenomenon (which is mental) must be distinguished from its alleged opposite A (the given, which may or may not be mental), and admitted as an

addition in the experiential field. But it remains true that A and non-A themselves are not in fact coexisting or both absent in the field – rather what we experience is coexistence of the given A with a *projected* non-A.

The law of contradiction does not deny the possibility that two *different* things might coexist, like a dot of light and the imagination (or memory) of absence of such dot of light; such things are merely contrary. The law of the excluded middle does not deny the possibility for something and *the idea of* its absence to be both absent from a field of experience; in such case, we can still suppose, as we indeed *see* as experience, that the thing itself is absent (even though the idea of its absence is allegedly absent – until mentioned as absent, that is!)[57].

57 Our minds seem so made that, indeed, we might consider that we always *think* non-A when we *see* A. This is not a mere perversion of the mind, it is rather an expression of the fact that concept-formation involves not only reference to perceived similarities between two objects, but also to perceived *dissimilarities* between other objects and them. Thus, in order to classify something as A, we must simultaneously declassify it from non-A. That is, the *thought* of A automatically calls forth the *thought* of non-A, for purposes of distinction. It is not that A per se implies non-A (though in most cases, A in one thing implies non-A in others, otherwise neither A nor non-A would be distinguishable in the first place), rather it is that A cannot be fully delimited or understood without bringing to mind non-A as a possible alternative (except perhaps 'non-existence' – though in that ultimate case, we can say that the term is merely verbal, without conceivable concrete referent). Furthermore, concepts

Thus, these laws are empirical, in the sense that they do not impose anything on the phenomenon, but accept it as is. They merely push *the observer* back into the fold of experience, should he venture to stray. They do not involve a modification or manipulation of the phenomenon, but on the contrary make the observer openly and carefully *attentive to* what is phenomenal. They involve a distinction between primary phenomena (be they 'material' or 'mental'), as given *ab initio*, and imaginary alleged representations (ideas, mental phenomena) of eventual phenomena, which merely introduce additional phenomena.

It is very important to emphasize again that **negation is a logical act**. It is never a pure experience, but always involves conceptual interference by the Subject. In formal logic, terms like A and non-A are neutral and formally indistinguishable. That is, they function in interchangeable ways, so that the negation of non-A (non-non-A) is technically equivalent to A (by obversion); and we might label non-A as 'B' and A as 'non-B' without affecting inferential processes. But at the phenomenological level, these labels are quite distinct. Something appearing would be labeled positively (say,

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formed by negation (like darkness) presuppose some relatively positive phenomena (like light), whose absence they express, having been conceived first.

A), whereas something not-appearing would be labeled negatively (as non-A).

What we here labeled A is a phenomenon or percept. What we here labeled non-A is *not* apparent per se, but only effectively 'apparent' in that *A* did not appear. Non-A signifies that we have *asked a question* 'is A there (i.e. in the phenomenal field)?' *and after further scrutiny answered it* by 'no, I do not find it there'. The former (presence) is *directly* known, the latter (absence) is *indirectly* known through a mental projection (*imagining* A, i.e. inventing it or remembering it from previous perceptions) coupled with an experimental search (whose result is unsuccessful). Clearly these are very different cognitions – one being purely passive and empirical, the other involving an active inquiry and referring to observation only by the failure to confirm an anticipated equivalent of one's imagination. The later is useful and informative, but it is a construct.

Negative concepts or statements are thus never strictly-speaking empirical, and negation is a fundamental building block *of reason*. A negation is at the outset, by its very *definition* when introduced by the Subject as a cognitive artifice, logically contradictory to something. It cannot then be said *empirically* that both percepts A and non-A occur (since saying I 'see' non-A in the present field of perception just means I looked for and did not see A in it), nor that neither A nor non-A occur (since if I look and do not see A in the present field of perception, I would conclude non-A for it – though I may remain

open-minded about other eventual fields of perception containing A)[58]. A negative concept or statement is therefore fundamentally different from a positive one, and can at best only indirectly ever be characterized as 'empirical'.

The three laws of thought are logical primaries, involved in all discourse about any phenomenon (and similarly relative to intuitive data, and at a later stage with respect to conceptual discourse itself). They jointly operate in identical ways in every observation, pushing us to admit what we see (identity), not to contradict what we see (non-contradiction), and not to ignore and add possibilities to what we see (exclusion of a middle). To fail to apply them is simply to confuse the given data with additional mental ingredients (fantasies), which neurotically either deny the evidence (mentally replacing it with its contradiction) or question it (by mentally proposing a 'middle' term). These laws can be stated as propositions, but they nevertheless have no conceivable alternatives. Any doctrine proposed has to be reconciled

58 Of course, at a conceptual level, i.e. when dealing with abstracts, we may encounter contradictions (i.e. both A and non-A seeming true) and doubts (i.e. neither A nor non-A seeming true). Here, both the positive and negative concepts are mental constructs, and so there is no guarantee that the issue can immediately be resolved by one look. That is of course where the whole science of logic comes into play; it is needed to deal with just such issues with reference to a plurality of experiences.

with experience somehow, since all discourse is a reaction to experience, an attempt to solve the mystery it presents, so merely ignoring experience does not qualify as reconciliation.

In that sense, it is accurate to say that these laws are laws of thought; they are laws *for* the mind (the observer). We may say that something is A and not A, or neither A nor not A. But these words have no meaning *in* experience, no phenomenal referents. They are just words, sounds or drawings that signify nothing, not even an imaginable circumstance. The way we 'imagine' them is to stupidly or deliberately confuse a thing and an image of a thing, and project the idea of non-A (instead of non-A itself) next to A (or next to the idea of A) or some such artifice. In other words, the propositions claiming to deny the laws of thought have only a superficial meaningfulness and credibility, due to in fact having referents (ideas) *other than* those they pretend to have (things). With regard to the original objects of perception, they are in fact silent.

Note well that application or obedience the laws of thought does not involve an imaginative act (a volition); it is on the contrary attempts to ignore or deny them which do, requiring interference of the observer's imagination in the cognitive process (preempting experience). That is, the laws of thought themselves are objective, it is only their denials that are subjective (in the pejorative sense). The laws of thought thus remain empirically, and epistemically, and therefore

epistemologically, undeniable. So much with regard to applications of the laws of thought to perceptual evidence.

With regard to concepts (which derive from comparisons and contrasts, or from subsequent imaginations recombining such concepts) and propositions (imaginations of relations between concepts), they remain always open to doubt, hypothetical, so long as equally credible alternatives are imaginable. Credibility is found in everything experienced or thought, it is merely admittance that such and such has been experienced or thought (thought being a sort of experience, though mental). *Ab initio*, any two concepts or propositions are *compatible*, having both been thought. Incompatibility is a later judgment, which follows realization that the concept or proposition somehow directly or indirectly contradicts experiential evidence or leads to internal inconsistency in knowledge or is inherently self-contradictory.[59]

If two such ideas or thoughts are found or not found to be in utter conflict, they both retain the minimal credibility of being at least *imaginable*, at least till one or both of them is found incoherent with some experience(s) or for

59 We consider concepts or propositions compatible until and unless we find some incompatibility between them. As I already pointed out in *Future Logic*, in opposition to the claims of certain modern logicians, we do not 'prove consistency' but rather 'find inconsistencies'.

some reason unimaginable. If for some reason they are considered to be in conflict, they separately retain some credibility, though their interaction raises a doubt and it is understood that we have to ultimately eliminate at least one of them, removing its temporary credibility with reference to further experiences or abstract considerations. During the phase of doubt, we may refer to their frequencies of confirmation in experience, and regard one as more credible (or likely or probable) than the other.

> The job of Logic is, note well, not to *exclude* as much as possible, but to find ways to *include* as much as possible, so that all opinions and points of view (which all have some basis and so represent some kind of experience) are accounted for and explained or explained away. Logic is thus not merely, as some contend, search for *contradictions,* but (this in order to) search for *harmonizations*.

3. Words and Intentions

Words are sounds, sights or touch[60] symbols that conventionally refer to phenomena, intuitions and abstracts. As sounds, sights, etc. per se, words are of course themselves phenomena, which can be expressed either materially or mentally as outer or inner speech or writing, being used for personal thought and memory or social communication and knowledge accumulation. Many words have rich natural and historical roots, but they are nonetheless conventional (i.e. arbitrarily chosen), in that they can always be changed at will by consent. Also note, the equations between word-sounds and word-sights (and likewise, felt-words) are also conventional[61].

Words evidently differ from language to language, from one population group to another. A language is a

60 For instance, blind people use touchable words (Braille); certain pre-Columbian peoples used knots in rope as words.

61 Thus, e.g. the sound of 'Avi' and the written letters A-v-i have no relation other than what we have convened for them, though that convention has a rich history that we will not needlessly ignore.

collection of words (vocabulary) used by someone or some group, in accordance with certain accepted rules (grammar). Words, for old or new things, are almost daily coined and adopted by individuals, social groups and societies. Whoever coins a word, for whatever purpose, must *intend* (chose, convene) some more or less stable signification for it. Without such an *intuitive* understanding, words cannot have any semantic content.

Words are not mere phenomena, but refer to things; i.e. these auditory, visual or touch phenomena are signs for things (phenomena, intuitions and abstracts) other than themselves. Whether the things they refer to are real or illusory, clear or vague, is not logically relevant to the fact of signification. Signification is a relation, one of equation of sorts, saying (i.e. intending, to repeat) 'when I mention this word, please think of this thing.' Words are labels, they have meaning. There are wordless thoughts; indeed most of thought is wordless. In the case of wordless thought, one is conscious of the meaning without use of the label.

Indeed, it is ultimately impossible to understand, use or discuss words without appealing to wordless thoughts. If (as some philosophers claim) words obtained their meanings only by equations to other *words*, there would be need for an infinity of words; and since that is not possible (language is limited in size, and anyway man has no time for infinite regression), the most basic of words, from which all others derive, would be meaningless; and thus *all* words would be meaningless.

But to claim (in words) that 'words are all meaningless' or that 'words refer only to other words' is self-contradictory, since such claim itself purports to have understandable and communicable meaning. Such claim is thus not a consistent thesis, and can be rejected once and for all[62]. Therefore, it is logically self-evident that some words are meaningful, and that as well as words with explicit meanings, there are wordless implicit meanings.

The meanings of words, as we said, may be phenomenal objects (e.g. 'Avi' refers to an individual physical person, but also 'person' refers to all persons), intuitive objects (e.g. 'I' or 'I want') or abstract objects (e.g. 'personhood' or 'wanting'). But moreover, more importantly, ***every word implies an intuition*** – the **intention** that the word concerned be associated with such and such a meaning being itself an intuitive object. We intend the meaning of a word, not only the first time, when we coin it or learn it, but every time thereafter, whenever we use it. Without

62 Similarly, the claim that words are mere conventions implies that 'knowledge is conventional' is confused. First because that proposition, as a factual assertion, claims to know something beyond convention about knowledge; whereas applied to itself, it denies the possibility of non-conventional knowledge. But furthermore, all conventions imply factual knowledge: you have to know *that* there is a convention and *what* that convention is supposed to be and *how* to apply it correctly! You cannot have a convention about a convention… *ad infinitum* – it has to stop somewhere factual.

such intention, the word remains a mere noise or shape, devoid of meaning for us. Words in themselves are inert; it is our intentions that give them life and power.

Each of us knows (in the way of self-knowledge, intuition) what he means by the words he uses at a given time, whether clearly or vaguely (and whether correctly or erroneously according to previously accepted conventions). This is evident in the fact that *when we think or communicate, we do not and do not need to explicitly list out all the words in our language and map all their proposed interrelations*; thus, our discourse at any given time is mostly wordless and the words we do use at the time concerned must be admitted to be ultimately wordlessly intended to refer to certain things, whatever they be.

It is therefore incontrovertible that we have self-knowledge of our intentions, with regard to words at least – i.e. the fact of intuition is unavoidably implied at least by the fact of language. This is an interesting and important *rational proof of the existence and knowability of at least some intuitive objects* (objects of self-knowledge), incidentally. We can confidently say that intuitive objects exist, as any attempted discourse to deny them meaningfully itself logically implies intentions (as to the meanings of the words used) and therefore (some) intuitive objects. Thus, the postulate that there are intuitive objects is not an arbitrary claim, but a hypothesis for which we have found empirical (concrete)

confirmation in the fact of language and its rational (abstract) implications.

Putting our ideas (terms, propositions, arguments) into words is called **verbalization**. Regarding the meaningfulness of words, what misleads many skeptical philosophers is the observation that words often have uncertain, vague and variable meanings. Starting from the assumption that words have to have real, precise and unchanging meanings to be at all meaningful, they conclude that words are otherwise meaningless. But this is a mistaken view, based on the misapprehension of word-meaning as equivalent to *definition* (by means of other words, as above described) and on a model of knowledge as a closed-circuit and static body of (verbal) information.

In truth, as careful observation of our actual behavior reveals, knowledge acquisition is gradual and adaptive. Our experience is cumulative and our rational reaction to it is a developing and evolving thing. There is no single item or total body of knowledge that stands alone and final; and the interrelationships between items, including the rules of interrelation, are always subject to review and revision. Knowledge is inevitably *contextual*, implying an unending trial and error process. It is not (verbal) definition that gives meaning to words; definition is only *an attempt to put into words* and delineate what we *already* wordlessly intend. A definition is like any other proposition subject to

empirical, intuitive and rational checks and balances. It is an inductive product, not a deductive preliminary.

When we come across a new appearance (be it phenomenal, intuitive or abstract), we may find fit to label 'it' for purposes of memory and further discourse. What we mean by 'it' (a physically, mentally, intuitively or verbally indicated, i.e. *pointed-to*, object, a 'this') is always tentative and open-ended. As we proceed further, thanks to new experiences and reasoning, this intended meaning may become firmer or shift or even entirely dissolve. First, 'it' may seem clearly understood; then we come across new phenomena or have new thoughts which make us realize that the initial intention is uncertain or unclear and we have to adjust our focus, and make further differentiations so as to pin-point more precisely what we 'really' intended by it; and so on, successively. Sometimes the intention remains unchanged, but our initial verbal definition (if any) may turn out to be inaccurate (too broad or narrow or otherwise inappropriate) and require modification. In some cases, we come to the conclusion that there was no need for a new word, and either abandon it or accept it as a mere synonym. In some cases, we realize that the term was already assigned to some other object, and keep it mind that it is a homonym.

Words are primarily intended to express (assumed) facts, but they may also be used – inadvertently as well as consciously – to signify fictions. We are quite able to distinguish a sensory phenomenon from an imaginary

one without demonstrated sensory equivalent, and register the names for each with appropriate caveats. The intended object of a word may at first be thought real (as all appearances tend to be), and then after further information and reflection (which sometimes stretches over centuries), be found illusory. In such cases, the word may be dropped altogether – or kept for historical or literary purposes *with the understanding that* what it refers to is fictional (e.g. 'unicorn'). These observations in no way justify a general condemnation of verbalization, but are events we take in stride without difficulty.

4. A Theory of Universals

'**Universals**' (a venerable philosophical term) is another word for abstracts, referring firstly to the presumed something underlying identifications of distinct sameness (e.g. the squareness of two square objects[63]), and at a later stage to whatever may lie behind more complex products of conception (involving imagination as well as logic); that is, all the end-results of interpretation, of reasoning about the perceived outer and inner world[64]. Furthermore, we assume that there are also objects of

63 Comparison involves two objects, as already stated. This does not mean that comparison is impossible with only one extended object under scrutiny, for we may be able to compare *parts* of that object together. We may, for instance, compare the sides and corners of a single square: the resulting concept is not the square figure as such, but concerns more specifically lines and angles. Even then, the concept is incomplete till we contrast other lines and angles.

64 I here count identification of sameness and difference in concretes, and of their conformity with the 'laws of thought', as among acts of reason (the first and simplest of them) in that they result in conceptual information. They are however so basic and relatively brief and devoid of process (direct) that they seem akin to perceptions. We could also, and often do, regard them as a distinct class of objects – objects of conceptual *insight*, as against 'conceptualization'.

intuition (i.e. self-knowledge)[65], and these may also be compared and reasoned-about, and give rise to concepts.

> We can safely assume that, in some cases at least, universals/abstracts/concepts have an ontological significance, and are not merely mental constructs *referring to nothing beyond themselves*. For to deny *all* concepts such reality, is to deny truth and meaning to *one's own* assertion too, since that skeptical assertion itself is wholly composed of concepts. It follows that at least *some* concepts must be admitted as having a presence independent of any thought about them.

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65 I have note well excluded from this class, of objects of intuition, claims to direct knowledge of objects beyond oneself, e.g. claims to sensing ghosts or reading other people's thoughts. These claims must be regarded, *ab initio* at least, as pretentious. While it might eventually be demonstrated by experiment that some people do have such extrasensory cognitive powers in some circumstances (e.g. by finding what they predict as thought by others as reported always or usually true by the latter, although no physical means of communication between the two were possible), the need for careful demonstration remains in every case an epistemological necessity. We cannot naïvely accept such claims as valid without resulting chaos in knowledge; they must be viewed as *hypotheses to be confirmed by adductive means*. Most people who claim direct knowledge of spiritual, intuitive, mental or material events outside themselves are simply not aware of the inductive processes involved in thinking, and tend to take their first impressions for granted without verification procedures.

> (Precisely *which* concepts are to be admitted is what the science of Logic is all about.)

As to the nature of universals, my own theory (derived largely from modern physics and Buddhist ideas) would be that universals are, effectively, mathematical formulas. If I compare two waves, all the measurements I perform in doing so can be expressed by means of the algebra of coordinate geometry[66]. Such formulas, or rather ***the relative measures of the waves' features, motions and relations*** signified/implied by the formulas, are what we call 'universals.'

> If the waves making up two particulars are wholly or partly equal or proportional, in respect of their varying shapes and sizes (length, amplitude), positions, trajectories (directions), speed, frequencies of conjunction or non-conjunction with others, then the particulars seem are 'similar' to us, and their common measures can be used to define concepts. Thus, universals (portions of waves, or of their histories) can be found in two or more particulars (full waves); and further abstracts can in turn be based on such abstracts (in the way of portions of portions of waves).

The magnitudes or degrees of the features, movements and interactions of waves (universals) are not the waves

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66 Here we of course have to go into detail regarding wave forms and mechanics.

themselves (particulars), yet *the waves cannot exist without having measures*. We perceive the waves and we conceive the formulas[67], but both are in a sense equally there, apparent in the phenomenal object of experience. For this reason, even abstracts are sometimes regarded as quasi– or virtually experienced (thus broadening the term 'experience' to cover all appearances).

The waves and their measures *cannot be dissociated* within the field of experience, being respectively entities and attributes or behaviors of entities. What reason does to 'draw out' (abstract) the measures, is to focus on them while mentally ignoring the waves (or any images of or symbols for the waves). One cannot normally directly know the measure of a *single* object; one can only do so by considering and comparing a *plurality* of (two or more) objects. Even when the intuited self conceives of 'a self,' although it has no direct experience of other selves, it refers to the many times it has intuited itself.

> Thus, a universal can be said to transcend experience, yet be somewhat in it or immanent –

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67 I do not mean to say that every time we think a universal we construct a precise mathematical formula. Ordinarily, people rarely if ever revert to advanced mathematics! I merely imply that we tend to such a formula, in a vague and approximate way – i.e. that if the mass of mental measurements and comparisons in our minds were correctly summarized, they would amount to a certain formula. Ex post facto extrapolation from fragmentary observations and notes is thus involved, in speaking of a formula.

> it straddles experience. A universal is not in some metaphysical Platonic repository of Ideas, nor merely in the mind of its beholders (though it may also be there, when some external wave induces a like internal wave in a mind); it is inherent in every complex of wave-forms with the selected common mathematical characteristics.

This explanation is not intended as a mere metaphor– it need not be limited to imagined waves, but can be extended to all concrete existents. If light and gravity are waves, elementary particles are complicated bundles of such waves, sound is a wave (movements of air masses), and if the other sense-modalities are ultimately wave-like (as the electrochemical events associated to sensation suggest), then all material and mental phenomena, including living beings, may be said to be waves.

These waves all occur and travel and interact within a space and time as voluminous as the universe, conceivably as moving deformations of some primordial fabric (the stuff of 'existence')[68]. They vary in

68 Looking at a large body of water such as a lake, you can get a visual image or analogy of what a universe of waves would be. You see bubbles, ripples and waves in constant flux, appearing, moving around, disappearing; these seem individual, in that the sunlight allows us to mentally draw boundaries for them, but they are all just the movements of one big entity; stir one place in the lake, and the motion is carried over to many or eventually (in diminishing degrees) all others.

complexity, ranging from brief and short events (unit waves, say) to the 3-D pulsations of quarks, photons, neutrinos, electrons or atoms, molecules, and to larger and larger collective wave motions of the later. Not just sights and sounds, but all sense-modalities, material or mental, including whole living organisms, are in this view varieties of wave or wave-motion formations.

And perhaps not only objective phenomena, but also subjective (i.e. intuited in/by the Subject) things and events might be supposed to have this fundamental wave character.

Wherever waves (particulars) appear, their measures (abstracts) are inherent in them. So we can say that, although universals are not normally additional *extensions* in the experiential field (i.e. not themselves discernible wave events), they are still somehow present in it. They are normally only known through interpretative efforts (comparing and contrasting two or more waves). This theory of universals as mere measures of things assumes all things are reducible to wave activity (in some primordial substratum, perhaps – yet not an ether, somehow[69]).

In that case, the complex waves we call the **sensations** can well be construed as wave signals transmitted from

69 In view of the Michelson-Morley experiment and its sequel, the Relativity theory (see further on).

one end of the sense organs via the spine and/or brain[70] over to their other end where the observer observes them. Similarly, **memories** may be supposed to be wave signals stored and sustained within the brain for occasional recall. That is, the senses transmit energy or fields onward to the Subject, from the 'outer' region of his experience, comprising his apparent body and its material surrounds. Memory may thereafter be produced, reverberating with the same vibration.

With this thesis, we are not forced to assume that the waves are distorted in transmission or storage, since our premise is that the terminal wave is a continuation of the initial wave. In such case, the message received (by the observer) does not just *resemble* the original message (captured by the sense organ's receptors or stored in memory); it *is* the original message, which has vibrated through the senses, and possibly memory, to us without refraction. Assuming uniformity, the beginning and end waves are just the same object at a different time – a single traveling (wave) object. They may be of different *substance* (material, in whatever way, or even a mental product of material waves) and even magnitude (though with due proportions), but their *form* must remain the same. The universal is that form – the mathematical

70 Which was labeled 'common sense' by Aristotle, as I recall. Meaning, central sense.

characteristics (including motions and interactions, as well as features) of the wave.

> Thus, when I see or remember a bird, say, I can rightly consider that I am in *direct* contact with the bird; I am experiencing the waves emitted by the bird that reach over (via the senses, or memory) all the way to me the observer. The waves *are* the bird, the part of it that flows over into my body. This is not a mystical statement, but one quite physical. Any delimitation of the bird (or any object) in space and time elsewhere than at the very limits of its range of physical effects is arbitrary.[71]

In this view, then, the sense organs (themselves wave complexes, like all matter) are filters for particular classes of waves (fine light waves, gross sound waves, atomic wave bundles, electrochemical bundles of waves, whatever). Each sense organ is capable of receiving and

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71 A bird, of course, is a complex entity, involving not only light waves from its plumage, but other sense data, like its physiology, its movements and behavior patterns, its call, its smell, even its taste. It is through consideration of *all* information about a given bird, in the same and other sense-modalities, and its comparison to other birds and things, that we decide whether, say, a visual message (apparent bird-form) falls in the category of 'real' bird, or is merely a photograph or statue of a bird. Errors do occur, not because the visual message is ever wrong, but due to not taking into consideration all information currently available (or later available).

passing on only specific wave-forms[72], leaving out all others; each specializes in a sense-modality (or group of sense-modalities), insensitive to others. The eyes exclude sound waves, the ears ignore light-waves, etc.[73] These waves would be the same in form if they had been encountered immediately and not vibrated though the senses; the senses only isolate them from their context. Therefore, we may indeed not see all the waves out there[74], but those we do see we generally accept as

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72 Although I say wave-form, I do not mean that sense-perception is perception of 'universals'. The wave the observer sees (via the sense organ concerned) is still concrete; it is not merely the *measurement* of the original wave (a 'universal' or formula or abstract) that is passed on, but the wave itself or a continuing echo of it (a concrete manifestation). I only mean to remind that the wave *has* a form, indeed a constant one.

73 This idea suggests that memory too is specific to the different sense-modalities; but it might also involve many sense modalities at once. As imagination is based on memory, it would be economical to store memories of complex sensory events in the various sense-modalities, so that they can be accessed separately in new combinations.

74 I cannot at this stage say just why filtering is necessary, however. A plausible explanation would be that a direct universal consciousness would be overwhelming somehow, driving the observer crazy by the multiplicity of messages. For evidently, digesting data *takes time*, we have to ponder the interrelationships between the items of our experience, and indeed think about the validity of our thinking processes. We all know from bitter experience that if too much information and thought is required at any moment, we become confused. The sense-filters therefore probably help us to sort and order incoming data for analysis and synthesis.

equivalent, as mere continuations of the original disturbance in space and time.[75]

> We should also in this context account for another kind of filtering, that of perceptible objects we do not care or take care to perceive. Thus, for example, I ordinarily do not pay attention to the glasses I am wearing or to the chair I am sitting on, and a mass of other sensations. I do not think such uninteresting items are ignored by the sense organs, because then we would not have the choice of perceiving them on occasion. Rather, I think we perceive them faintly, but discard the message, or allow it to enter memory subliminally, without giving it full conscious attention.

Similar comments can be made with regard to memory, note well. Once the sense-object has been perceived by the Subject, after relaying the waves concerned by sensory processes, the wave is stored (electrochemically,

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Yet immediate universal consciousness is precisely what Enlightenment-seekers work for and claim possible. According to them, reliance on sense-perceptions is an aberration to be avoided, sense-data being but a veil over reality!

75 Such filtering may be considered not to occur in self-knowledge – there being no distance to travel between the observer and himself, or disturbances within himself (viewing here attitudes and volitions as waves or wave motions, perhaps within some distinct, 'spiritual' substance of the observer's soul), no senses are needed and the observer knows himself most directly.

as neuroscientists teach us) in the brain. That is, we can well suppose, the wave *itself* is artificially made to *continue existing* in the way of some activity in the brain. Thus, in this view, the neurological 'imprint' is not a mere coded *symbol of* the original message, it *is* the original mathematical message. In such case, even while admitting that the message may occasionally be dampened, hard to recall or even lost, there is no need to figure out how come it (usually) stays the same. When we evoke a memory, or recognize a repetition of a sense-object previously encountered, we merely use the *ongoing* physical wave deep in the brain to produce a perceptible mental wave, identical in form to the stored one and to its sensory origin, projecting it (as an more or less vivid image) apparently inside our mind (for reminiscence) or outside it (for comparison to the new sense-object).[76]

What is true of memory of sensations is equally applicable to memory of abstracts based on such sensations, since as above postulated such abstracts are merely mathematical aspects of the wave-forms of the original sensations. Thus, we can understand without difficulty how abstracts are concretely stored in memory.

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76 The best metaphor for memory, in my view, is that of an *echo chamber*. I imagine a sight or sound (or whatever) channeled into a brain cell and there allowed to rotate on and on (storage function), until we decide to peek into the cell and see or hear the vibration once more (recall function).

As for mental projections (imaginations, perhaps feelings) and objects of intuition, and abstracts derived from them, supposedly they have allied physical vibrations in the brain (i.e. each of those thoughts has a specific physical effect, which therefore 'corresponds' to it), which may be stored in memory and recalled.

Some philosophers would object that the waves sensed or remembered may well, for all we know, change form as they tumble through the sense-channels, or within their memory storage. But in such case, we still have to appeal to the senses and memory to invalidate particular sensory or memory experiences – otherwise, how do we claim to know that error occurred? So we can only logically suppose occasional distortion.

> They could instead argue that the waves we experience are not as they seem end products of sensory processes, but independent events merely contiguous with them. But in such case, the impressions that we have a body, with a brain, spine and sense organs boiling with activity, would remain unexplained phenomena, leaving a gap or loose end in our understanding of the world experienced. To integrate all phenomena into our world-view, we need to include consideration of the phenomena we call the sense organs, etc., and suggest why they are there, what their role might be in the wider context of experience.

Thus, extreme skepticism is self-defeating, whether by inconsistency or by incompleteness. At first sight, the sensory and memory processes might be supposed refractive, producing an image very different from its origin[77]. We however cannot logically claim that this is definitely true, because such statement would require cognition of sense-objects without reliance on the senses, or of memory-objects without reliance on memory. The critic would be claiming special cognitive privileges not granted to the rest of us.

Our present account approaches the issues from another angle – phenomenologically. Start with the phenomenon *as a whole* as given; the only issue at stake is then: what is the possible relation between these two aspects of it (the objects classed as external and those classed as mental-images produced by the senses or the brain)? In that case, we may assume that the senses and memory relay the information and do so without affecting it, with much less pretensions. For we only claim to *relate together* two factors (the material object allegedly sensed or remembered, and the subsequent sensory or memory

77 Note in passing that this skeptical thesis at least implicitly admits that internal objects (images) are correctly perceived by the Subject (within his mind), even if it claims them to be incorrect renditions of external objects by the sensory and brain organs. It has to do so, to have anything to discuss at all! Cognition as such is not in question, but only the assumed equation between different classes of objects.

processes presenting a mental image at the interface with the observer) which are *already* in the field of consciousness and accepted as existing (whereas the opposite view lays claim to things *outside* its own awareness by its own admission).

We are only attempting to explain the existing situation, that a process takes place through the senses during perception of physical matter or in the brain during its recognition – what is the role of these evident processes, we ask? If we assume there is *always* refraction, we are making a statement denying our experience of the matter at hand. But we may well, i.e. consistently, assume that *not all* sense or memory information is faithfully transmitted, so long as we can determine the matter by *some* other, more reliable sense-data (and, often, of memory-data). We thus prove that (some) sense and memory data is trustworthy.

We may wish to confirm sense evidence scientifically, by means of experiments showing that the information indeed stays the same from reception by the senses to presentation to the observer, in the way of a physically discernible persistent vibration, whatever its comparative size, depth or substance. Similarly, we could look for an ongoing physical vibration of some sort in the brain, before definitively concluding that memory is stocked as specific wave-forms. But the issue is really not empirical – it is logical (which means in practice that even if we don't immediately find something, we have to keep looking).

Say we find no evidence of persistent wave-forms; we would alternatively look for fixed formulas that 'translate' the original wave in some regular manner, so that even if the final wave does not resemble it they can be correlated. Claiming codification of sense or memory data is not the same as claiming lawless refraction; for uniform refractive processes would simply require that we 'correct' our world-view by 'translation', whereas random refraction (such that no correspondences whatever can be established) would leave us in confusion. But in the last analysis, even assumption of a regular code is not a viable theory, because it too ultimately makes contradictory claims, that matter is perceived and yet – because of sense or brain interference – is not perceived correctly (which means, not perceived period).

So we must conclude, whatever experiment reveals, that 'some sense and memory experience is valid' is a logical truth. That is, no experiment being possible without this truth, none can belie it!

> We do not need an epistemological 'axiom' to defend sensation and memory as universally reliable. It suffices to consider the products of these faculties as *true until and unless found false*. That is, the assumption of their essential correctness is an *inductive* principle, rather that a deductive credo. No artificial forcing of the issue is involved. Every event of sensation or memory is granted initial credibility, while remaining open

to eventual sensations or memories that may put the preceding in doubt. When and if particular contradictions occur, they must be sorted out in accordance with normal logic.

It should be noted that the wave theory of universals proposed is the only coherent theory available. If we consider other proposals in the history of philosophy, we find them all to be logically flawed, and so in fact incapable of dealing adequately with the problem of universals. Thus, Plato's Idealism, according to which the explanation of the common characters of different things experienced in our world are that they reflect certain transcendental "Ideas," gives a wrong impression of solving the problem while in fact only sweeping it under the carpet. The Ideas existing in a higher world are only *less numerous* than the things in our lower world, but they are still a plurality with some common characters. In that case, what of *their* common characters, such as "transcendentalism," "ideality," or existence – are they in turn representatives of a single, unitary, top world? And how would this One Grand Idea break down into the Lesser Ideas?

A more immanent view of universals, which could be regarded as effectively the current "common-sense" view, would be that different primary *substances* are scattered throughout the universe and combine in different ways to produce the things we perceive through the senses. Alternative theories can be proposed as to what to regard as these material substances: they might

be distinct *sensa* (i.e. units of sensed light, sound, etc.), or perhaps *qualities* (the minimum number required to construct things) rationally inferred from sense data. Some suggest instead that universals may be *mental* or *verbal* constructs – i.e. imaginations or subjective inventions or mere words in our heads. Whatever we construe them to be, the (material or mental) theories of universals as substances suffer from the same flaw as Plato's theory: we are still left with the need to explain a plurality (albeit a smaller one), and derive it from a unity (existence).

5. Unity In Plurality

The above 'wave' theory of universals, *granting* its premise that everything is ultimately reducible to 'waves,' i.e. mobile vibrations in some sort of continuum, leads to the very radical conclusion that 'all things are one.'

The world as it appears to our touch-organs or to the naked eye – or even the eye aided by microscope or telescope – may give the impression that dimensionless points, lines or surfaces exist in nature, but as Physics has evolved it has become clearer that ***physical objects do not have precise corners, sides or facades – but fuzzy limits, arbitrarily defined*** by the visibility to our senses (specifically, sight and touch), aided or unaided, of concentrations of matter or energy.

> For example, the tip of my penknife may seem like a sharp "point" to my touch or sight, but it is really – according to physical science (i.e. upon further investigation and reflection) – a rough, voluminous conglomerate of atoms, which are themselves complexes of smaller and smaller particles (electrons, protons and neutrons, seemingly some distance 'apart' from each other, etc.), which are themselves without beginning or

> end being really vague clusters of waves. Similarly with regard to the cutting edge or flat sides of my penknife.

Indeed, if one takes these considerations to their extreme conclusion, one could say that ***no object has a beginning or end, every object stretches to the ends of the universe or to infinity***, and what we refer to as a specific individual object is merely the most humanly visible or concentrated part of that whole, which we arbitrarily or conventionally consider a separable unit (and habitually name, to solidify our viewpoint). So that ***ultimately, there are in fact no individual objects, but only ripples in the single object that is the universe as a whole***.

Where does an atom (or any other body) begin or end, granting that all consists of waves? If we see a star billions of miles away, on what basis do we say that the star ends over there, while the "light from the star" is here? Rather, we ought to say that the light we see is *part of* the star, i.e. that it extends all the way to us (at and through our visual sense organs, and on to our memory) and beyond. At what distance from the star do the gases or the light it emits cease to 'belong' to it, and are to be considered as 'separate' bodies? ***The cut-off point can only be arbitrary, i.e. mere convention.*** Gravity operates at astronomical distances. What objective ground do we have for distinguishing a field from its apparent origin? Furthermore, stars are in constant flux, arising in time and disappearing in time. At what point in time (as well as space) may we claim that the matter and energy we

now call a star is 'not yet' or 'no longer' a star? Surely, the quarks from which the star emerged were already 'the star' and when the star bursts or is absorbed into a black hole it is still 'the star.' We ourselves are stardust – does that mean that the stars in question *became* us, or that *being* a star – from the beginning of time to its end – includes eventual human forms?

In this view, ***every entity in the universe stretches out with every other to fill the whole space and time of the universe***! And if we say this, we might as well say – without any mystical intent, though in agreement with Buddhist mystics – that all things are one. There are just *more intense concentrations* of matter or energy here and there, now and then, in *one continuous* field, but nowhere dividing lines. Because ***we perceive only fractions of the totality, only the aspects involving the sense-modalities***, we isolate small blobs of the whole as individual phenomena. All phenomena perceived are centers of complex wave activities in the universal fabric; *We* 'individuate' phenomena *with reference to the sense-modalities they exhibit which are accessible to our senses*. We regard as delimiting an individual object in space and time such perceivable *fraction* (visible to the senses) of the wave activity stretching to the ends of the universe – ignoring its larger invisible extensions, later induced by reason. Thus, ***all individuation is fantasy*** (this can be known by rational considerations, as here), ***reinforced by naming*** (itself a sense-modality

phenomenon, by the way). In which case, strictly speaking, ***nothing is divisible at all***.

That would seem to be a correct view of our physical world in the context of present knowledge – the hypothesis most consistent with experience, experiment and current scientific theorizing. We thus, provided we anticipate the results of Physics and claim that some sort of unified field theory is sure to be established, and provided we stretch that assumption to include wave explanations of the mental and spiritual domains, arrive at a concept of the world as 'unity in plurality' – a harmonious marriage of the philosophies of Pluralism and Monism. Heraclitus was right – everything is ultimately motion (i.e. waves) and Parmenides was right too – everything is ultimately one thing (i.e. the medium subject to waves).

We could even view this conclusion as a justification of the Buddhist view that "all things are empty!" For instance, the message of *The Diamond Sutra* seems to be that all objects material or spiritual are *infinite* vortices with no beginning and no end. They are neither categorical as they seem; nor can they be surely declared hypothetical, being delimited merely by our naming of them, but having no sure limits in themselves so far as we know so that they are therefore effectively boundless.

We have already, inspired by Buddhist doctrine, concurred with them that individuation is a man-made artifice. But even granting that we might legitimately, out of mere convenience, focus on specific places and

durations of the universe, because a disturbance 'stands-out' there and then in relation to our senses – we are still left with the question as to *what* it is that is disturbed? What is *the medium* or substratum of all wave motions? We are tempted to view it as a stuff and call it "existence," or like Descartes call it "the ether." The problem is that since the Michelson-Morley experiment on the velocity of light such a substance underlying waves has apparently been discredited. These physicists measured the velocity of light in the same direction as our planet's motion and in the opposite direction. To everyone's surprise, they found the velocity identical either way. This was eventually explained by Albert Einstein as indicative that there is no absolutely stationary substratum or "ether" relative to which wave motions occur, and he built his famous theory of Relativity as an alternative world-view (such that space and time coordinates are depend on the velocity of the observer relative to what he measures).

Thus, although when we think of waves, and mathematically work out their motions and interactions, we regard them as disturbances within some medium, it turns out that there is no such medium according to experimental indices! On this basis, we can agree with Buddhist philosophers that (surprisingly, incomprehensibly) *nothing* is being waved – i.e. that the ultimate nature of "existence" is "emptiness." And there is no need of high meditation or mystical insight to arrive

at this conclusion – it is seemingly justified by ordinary experience and reason (scientific experiment and theory).

5. THE SELF

1. The Self

According to our account, the 'self' is first noticed experientially, through a faculty of intuition. This same assumed faculty (of the self) is able to experience the self's cognitions, volitions and affections (i.e. its 'functions'), as well as the self itself. Neither the self nor its said immediate functions have any phenomenal characteristics, so they cannot be perceived. The fact that they cannot be perceived does not however imply that they do not exist; in their case, to repeat, another kind of experiential cognition is involved, that of 'intuition.' Cumulative experiences of self and its functions allow us to construct concepts of self, cognition, volition and valuation.

Additionally, we regard self and its functions as having mental and material *effects*. Imaginations and mental feelings, as well as bodily movements and sentiments, are considered (within our current world-view) as indirectly caused by the self, through its more immediate exercise of cognitive, volitional and emotional powers. What is caused by the self is not strictly speaking 'part of' the self, yet it still 'belongs to' the self in the sense of being its responsibility. This *extended* sense of self may be said to have phenomenal characteristics.

> Moreover, apparently, the moment we but experience anything phenomenal, or think in abstract terms, or make choices or take action or feel emotions of any sort, a person as the grammatical subject seems logically required. That is, an 'I' doing these things seems to us implied. Every object appearing give rise to a parallel awareness of a **Subject** to whom it appears and a relation of **consciousness** between it and the object. Similarly, every act of volition or valuation, however devoid of phenomenal characteristics, arouses in us the conviction that an Agent (or author or actor) is involved. This is called 'self-consciousness,' but it is somewhat inaccurate to do so, because what is involved here is not only intuition of self, and eventual perceptual experiences, but also a logical insight, something abstract and conceptual.

We conceive the self, in its strict sense, as composed of a uniform substance that we label 'spiritual' (to distinguish it from matter and mind). We also conceive it as an entity that we call 'soul,' which underlies all events and changes relative to the self (i.e. its functions), constituting an abiding and unifying continuity[78].

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78 The term 'self' might be defined (in a rather circular manner) as 'other than everything else that is an object of consciousness.' It of course refers to the same thing as 'soul.'

> Contrary to what some people presume and some philosophers (pro or con) suggest, to assume (whether intuitively or conceptually) a soul or spiritual entity underlying cognition, volition and valuation, does *not* logically necessitate that such entity be eternal. Constancy in the midst of variation does not imply that a soul has neither beginning nor end in time (or space). Just as a material or mental entity is conceived as something permanent relative to certain transient aspects of it, and yet as a whole transient relative to the universe, so in the case of a spiritual entity, it too may well have a limited world-line in space-time.

Intuition, perception and logical insight only necessitate the existence of one self – the Subject of these acts of consciousness. Solipsism remains conceivable. Our common belief that there are many souls like our own one in the world is a conceptual construct and

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The concept of soul refers to something very unitary, the ultimate Subject of cognition and Agent of valuation and volition. The concept of ego refers to a more superficial layer of the psyche, a complex of current and habitual attitudes and behaviors, bound together by certain 'ruts' of thinking. The former is relatively free and responsible; the latter functions under considerable compulsion. The ego is the passive expression of the soul's *history* of experiences, thoughts and choices, whereas the soul is the active maker of that history. (See next section.)

hypothesis, which as such is perfectly legitimate and indeed helps to explain many experiences. Also not excluded is the belief that there is really only one big Soul (that perhaps pervades or transcends the universe of matter and mind), underlying the apparent small soul(s) – this is the belief of monotheism. That is, belief in a soul does not prejudge the issue of *individuation*. Just as material entities may, upon reflection, be considered as all mere ripples in a universal fabric, so possibly in the case of spiritual entities.

But such ripples might be permanent or transient. There is no logical necessity to assume that upon dying the soul lives on elsewhere (in a heaven or hell), or that it remains or is reborn on earth in some form, though such possibilities are not to be excluded offhand. The difficulty with any idea of transmigration is to experientially demonstrate some sort of transfer of spirit or energy (karmic reaction) from one incarnation to the next. To imagine some such transfer, to assert it to occur, is no proof. I cannot either think of any theory for which a 'law of conservation of spirit' might be a hypothetical necessity to explain certain empirical data.

Moreover, to posit the existence of a soul does not necessarily imply that this substance, anymore than the substance of imaginations, can exist outside and independently of the material substance. The spirit may be just an *epiphenomenon* of the peculiar cluster of matter which constitutes the biological entity of a living,

animal, human body, coming into being when it is born (or a few months earlier) and ceasing to be when it dies.

> (Notwithstanding, we may just as well posit that matter and mind are more complex arrangements of spiritual stuff, as claim that spirit and mind are finer forms of matter; ultimately, the distinctions may be verbal rather than substantial.)

The question as to where in relation to the body the soul is located, whether somewhere in the region of the brain or throughout the body, remains moot. Also, the soul might be extended in the space of matter or a mere point in it. But such issues are for most purposes irrelevant.

Many philosophical questions arise around the concept of self, and it is legitimate to try to answer them if possible. But one should not forget the central issue: who or what if anything is the Subject of consciousness? This question arises as soon as we are conscious, and cannot be bypassed by any sleight of hand.

As already mentioned, some Buddhist philosophers deny existence to the Subject, self, soul or spirit. Insofar as their argument is based on the impossibility of pinpointing perceptible qualities of the soul, it carries some conviction. In the West, David Hume presented a similar argument. But their attempt to explain away the common impression that we have a soul by making a

distinction between relative/illusory existence and independent/real existence is confused[79].

> Buddhist philosophers explain our belief that we have a self as an illusion to due the overlap of innumerable perceptual events (sensations and imaginations), called *dharmas*, which we mentally integrate together by projecting a self at their center. They have an ontological theory of '**co-dependence**' or 'interdependence,' according to which not only the self but all assumed essences are mere projections arising in our minds, due to things having no existence by themselves (solitary and independent) but existing only in (causal and other) relations to all other things[80].
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> I want to here suggest in passing how the co-dependence theory itself may have erroneously arisen. Every theory has a kernel of truth, which gives it credence; the problem with some theories is that they have a husk of falsehood, which must

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79 In *Buddhist Illogic*, I criticize this idea as based on dubious generalizations and infinities.

80 In my not yet published work *The Logic of Causation*, I show how if everything is causally related to everything else (in the same sense of causation), then nothing is causally related to anything! For causation can only be distinguished out from the mass of appearances if some things have this relation *while others do not*. The notion of 'everything causing everything' is self-contradictory.

be separated out. In the case of this theory, the error is a confusion between ontology and epistemology. I would agree that no item *of knowledge* is true independent of all others. Any appearance has by virtue of at all appearing (as an experience or as a claim in abstract discourse) a quantum of credibility. This basic minimum does not by itself definitively suffice to make that appearance 'true.' It merely grants the appearance consideration in the overall scheme of things. Only after each and every item has been confronted and weighed against all other items, may we terminally declare those that have passed all tests 'true.' Thus, the truth of anything is not only due to the initial drop of credibility in it, but to the final combined force of all drops of credibility in all available data.

Buddhist philosophers have, by imprecise thinking, turned this methodological fact into an idea that there is 'real' universal co-dependence. Moreover, their theory is that existents are apparent only because an infinity of 'relations' crisscross. These relations are claimed 'empty' of terms, i.e. they are relations relating 'nothings' to each other. It is not said what sort of existents these relations themselves are, and why they are exempt of being in turn mere products of yet other relations ad infinitum. It is not said how an infinity of zeros can add up to a non-zero. By way

> of contrast, note that in my epistemological version each item of appearance has an initial drop of 'credibility,' and the final product has a truth value that can be equated to the sum of all such initial quanta. It is not an interdependence of zeros.

As for consciousness, Buddhists regard it as directly accessible to itself, in high meditation at least. This is what they seem to intend by expressions like 'no-mind,' or consciousness 'empty' of any content, without object other than itself. They thus seem to posit the possibility of an instance of the relation of consciousness turned on itself (as against the ordinary view of 'self-consciousness' – which is 'consciousness of consciousness of something other than consciousness'[81]). This could be interpreted as a tacit admission by them of the possibility of intuition. Observe also, they often use the terms Subject, consciousness and mind interchangeably, which gives rise to confusions and errors.

> It is worth noting in passing that terms like 'no-mind' or 'emptiness' are negative – and, as earlier pointed out, negation is a rational act. Nevertheless, it would be unfair to regard these

81 That is, one instance of the cognitive relation has *another* instance of the relation as its term, which in turn has something *other than* an instance of the relation as its term.

concepts as based on ideational construction. Buddhists who use them claim them to refer to a positive experience. The negative names are only intended to stress that the content of such experience is incomparable to any other.

The phenomenological approach to the above issues is different. To begin with, it is sufficient to stress the *doctrinal* aspect of Subject and consciousness. Whether we grasp them intuitively, through perception or conceptually, what matters most is the role they play in our arrangement of knowledge, in our view of the world. If their assumption enables us to propose a *consistent and repeatedly confirmed explanation* of the appearance of phenomena, i.e. that they appear (somehow, we do not know just how) primarily through senses or using memory and imagination, to an entity with a mind and a body surrounded by a physical world, and so forth – then their worth and truth is inductively proved.

The concepts of Subject and consciousness are not loose, arbitrary inserts in the puzzle of knowledge, but interdependent items in a complex structure. They are part and parcel of the collection of concepts through which our experiences are made to seem intelligible; that is all. They need only be claimed to be hypotheses; we need not reject alternatives offhand, if any credible alternatives are proposed. Our security is based not on an anxious attachment to one more dogma, but on the track record of these concepts together with others like them in putting certain issues to rest.

The 'self' could be considered as phenomenal, *in the sense that* phenomena are perceived as modified (refracted or somewhat shifted) by some presumed presence, which is assumed to be the self of the perceiver. The self is thus phenomenal indirectly, by virtue of being *'inferable'* from phenomena. This is normal inductive procedure: some empirical event stands out and is explained by some hypothesis or other, which is found coherent and thereafter repeatedly confirmed (unless or until specifically refuted by logic or experience).

> To illustrate the thinking involved: If I look at the surface of a body of water and see that the general pattern of the waves is broken someplace, I mentally outline the area that seems affected (i.e. which has a different ripple pattern) and also propose some reason for the modification (e.g. rocks below the surface, a gust of wind, the passage of a boat, and so forth). Similarly, if I see a shadow, I assume something to be casting it (i.e. to be blocking the light); and according to the shape of the shadow, I estimate what that thing might be.

Buddhism seems to intend to interdict this thought process. It tells us not to infer anything behind the perceived 'modification' in the phenomenal field, but take it as is. For Buddhism, to speak of 'modification' is already an artificial isolation and thus a distortion of fact; it is a projection of 'form' onto content, implying

extraneous activities of comparison and contrast. Moreover, to seek a 'cause' that explains the modification is merely to add another layer of projection to an already eclipsed empirical reality. This is true not only with regard to assuming things have underlying 'essences', but also regarding the assumption of a 'self' perceiving and inferring. Better, we are told, to look upon phenomenal events (the visible ripples or shadow, for instances) and see them as they are, rather than see them as indicative of other things and get lost looking for such phantasms.

This argument may seem to carry conviction, but it is not consistent. Being itself a conceptual discourse of the kind it criticizes, it throws doubt upon itself. We may well admit the interferences involved in conceptual thought (as in the functions of isolation, projection of outline, comparison and contrast, causal reasoning, hypothesizing), without thereby having to deny its validity when properly carried out. Indeed, this is the only consistent position.

Furthermore, my own position is that our own soul (or self) is not only inferred from the appearance of phenomena, but also directly 'intuited' – or at least inferred from intuitions. Certainly, the soul's non-phenomenal functions (consciousness, volitions, preferences) have to be directly intuited, as they cannot be fully explained with reference to mental and material phenomena. Possibly, the soul is in turn inferred from these intuitions; or equally possibly, it is itself directly

intuited. To my knowledge, Buddhism does not take this phenomenological thesis into consideration, nor of course refute it.

2. Factors of the "Self"

With regard to the concept of self, we need to identify the various ways we develop belief in a self, i.e. the bases for such a concept in practice, i.e. ***what we rightly or wrongly identify ourselves with***. The following are some examples to be expanded upon:

a) We personally identify with ***sensations of and in the body***, including touch and other sensations that present us with its extension and delimit its boundaries in relation to a perceived more "outside" world, as well as visceral physical sensations and sentiments. Thus, we feel and see and hear and smell and taste our "own" body, or parts thereof, and identify with the sum of these perceptions. This is due largely to the enormous 'presence' of the body in our experience, its insistent and loud manifestation. It demands so much of our attention that we become focused on it almost exclusively.

Consider how (most) people confuse themselves (to a large extent) with their sensual urges and emotions. If they feel hunger pangs, they rush for food. If they feel a sex urge, they either grab a mate or masturbate. If they feel like alcohol, tobacco or a drug, they readily indulge. In search

of sensations they engage in endless chatter, or watch movies or listen to music. People commonly think that when they feel pride or self-pity, or love or hate for someone, they are in contact with their innermost being[82]. We confuse every urge or sentimentality with ourselves, and therefore uncritically think that satisfying it is imperative to do ourselves good.

b) We identify with our ***perceptions of the world beyond*** our "own" body, the "outside" world. Although these experiences are considered external to us and transient, they serve to define us personally in that they are a specific range of actualities within the larger field of possibilities. That is, we identify with our life story, our personal context and history, our particular environment and fate. We forget that we are fallible, and ignore the role chance plays in our lives.

We learn a lot about ourselves, not only by introspection while alone, but also by observing one's behavior in relation to the external world, the challenges of nature and interactions with

82 Of course, I do not mean that feelings are unrelated to the person experiencing them, but only that they may be more superficial than they seem, or have subconscious motives other than those pretended, and so forth. For example, apparent 'love' may turn out to be mere 'infatuation,' or be motivated by convention or duty, or even unadmitted hatred.

other people. We also learn about ourselves through observing other people's behavior, and recognizing our own similar patterns of behavior in them.

c) We identify with our memories and fantasies (including anticipations of the future, our ideals and plans, idle dreams, etc.) – our ***mental projections***. We see our identities in terms of our specific past experiences and adventures, and our present desires and expectations for the future. Obviously, this aspect is not merely perceptual, but implies a ***conceptual framework***, which generates certain thoughts and emotions. Even if these are gradually changing, we identify with their evolution and direction of change, as well as with their constant elements[83].

d) We identify with our ***past and present beliefs and choices***. This aspect relates to Consciousness and the Will, which format our distinctiveness and identity, as well as our insights, thoughts, behavior, whims, values, pursuits and emotions. Implied here is what I have called the intuition of self – i.e. self-knowledge in a serious sense. We also identify with our *presumed future choices*, that is to say what we expect or intend or are resolved or plan to do.

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83 This is stated to oppose the Buddhist idea that inconstancy implies that there is nothing to identify with. One may indeed identify with a changing set of things.

e) Similarly, we identify with our verbal and pre-verbal ***discourse***. As evident in meditation, not all thoughts are in fact generated by ourselves. We are passive recipients to many or most of them. They just pop up in our minds as *non-stop* mental noise, repetitive nonsense, compulsive chatter. But most of us usually assume possession of such internal events, regard ourselves as their authors, and therefore define our selves in relation to them.

f) A very important self-identification is that with our ***mental image of oneself***, be it largely realistic or fanciful. This includes memories and fantasies – in all the sense-modalities – of our facial and bodily features and expressions, character traits, voice and handwriting, and other aspects of personality, as well as of our thoughts and actions. The memories and fantasies are based on reflections in mirrors and pictures and other visual and auditory recordings of oneself, as well as direct perceptions of parts of one's body and its movements and of one's inner world.

This self-image is what we would most readily refer to if asked to point to one's self. The important thing to note about it is that it is a construct, a mental projection – it is not to be confused with the self that cognizes, wills or values. It is an effect, not a cause. It has no power of cognition, volition or emotion, but is only an image that may influence the real self.

Egotism or self-love is having an exaggerated opinion of one's own worth (beauty, intelligence, etc.). One of the main attributes or behavior-patterns of the "ego" (in the colloquial pejorative sense) is its stupid conceit.[84]

g) In formulating our personal identity, we are also influenced positively or negatively by ***how other people see us or imagine us***. Their perceptions or conceptions about us may, of course, be true or false. We must also be aware of the distinction between: how we *know* them to see us or imagine us – and how we *imagine* that they do.

These issues are further complicated by the fact of ***social projection***: we often try to project images socially, through our discourse and behavior, in attempts to influence our own and other people's judgments about us. Thus, we may deliberately subconsciously edit our self-image for ourselves – modifying, withholding or adding information – till we lose track of realities concerning ourselves. And even when we do it just to confuse or mislead other people (in order to gain material or social benefits from them), we may end up ourselves losing track.

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84 Paradoxically, narcissists, vain persons who are wont to look excessively in mirrors, or seek to be photographed or filmed, are psychologically deeply insecure about their existence and identity. Big egos are really inflated balloons, fragile to a mere pinprick.

This factor plays an important part in social bonding and regulation, but it can also become tyrannical. So many people pass all their lives trying to influence other people into seeing them in a certain way, so as to gain their love, respect or admiration. And if they cannot in fact fit in to assumed social demands, they will pretend to fit in.[85]

h) As the Buddhists rightly point out, our ego also defines itself with reference to its alleged ***external "possessions"***. "Who am I? – I am the one who owns this and that… I am the husband of this woman, the father of these children, the descendant of these ancestors, the owner of this house and these riches, the leader of a corporation, the recipient of a literary prize, the winner of a competition, etc." Note well, included here are not only material possessions, but also possession of people in whatever sense (sexual conquest, political domination, etc.) and abstract possessions (I wrote this essay, etc.).

To some extent, this identification of "me" with "mine" is an expression of the earlier listed more

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85 This was identified by Ayn Rand and Nathaniel Branden as a widespread affliction. They called such people, whose thoughts, values and actions are neurotically dependent on other's, "second-handers." Conformism or eccentricity, fear of loss of face and pursuit of prestige, are some of the expressions of this problem.

internal factors: "This is my shadow, *because* I have this body," "I own these things or people, *because* I have certain character traits and made certain choices, thus developing a certain history," we tell ourselves. But additionally, as Buddhists stress, it serves as territorial expansion for the ego, solidifying its existence, further anchoring it to the world.

Egoism or selfishness is looking after one's own (assumed) interests, exclusively or predominantly. One of the main attributes or behavior-patterns of the "ego" (in the colloquial pejorative sense) is its arrogant grabbing, irrespective of who is harmed thereby. 'Looking after Number One,' as the saying goes.

i) The fact that each of us may be referred to by a proper ***name*** (or pronouns that temporarily replace it) also, as Buddhism stresses, serves to impose and solidify in our minds the idea that we have a distinct self. Things referred to only by means of a common name (e.g. "a man") have less identity for us.

We can include here all the *conventional aspects* of our identity: our ID card, for instance. This relates to considerations of *group membership*: membership in a family (family name, birth certificate), a nation (naturalization certificate, passport), a social class (rich or poor, commoner or ruler, different educational levels and professions), a religious denomination, an

organization or a club. All these factors add to our "identity" largely[86] by mutual agreement, as does a name.

j) The ***theoretical concept*** of self or soul is also projected onto one's self – "I am this abstract entity". Whether this concept is true or false is irrelevant here; what matters is that there is such a theoretical projection for most educated people, i.e. we do identify with the self conceived by religions, philosophies and psychologies.

For religion, the focus is on the enduring substance of the self (soul, spirituality) and on its moral responsibility and perfectibility (freedom of the will). The main feature of the philosophical self is that it is *reflexive*: it points back to the person who is conscious and willful, it is both Subject and Object, both Agent and Patient. Psychology is more focused on the existential intricacies of the self, some of which are indicated herein.

As colloquial use of these terms makes clear, the concept of ego is not identical with that of self. The ego is a creature of the self. When we feel insecure, we may seek to reassure ourselves by engaging in 'ego-trips.' This

86 Factual, as well as merely conventional aspects, may also of course be involved. Thus, family, nation or religion is usually based on one's natural parents; educational level or profession, on actual studies and practice; and so forth.

refers to comparative and competitive tendencies, such as domination, pursuit of admiration, or acquisitiveness. Power, fame and/or fortune gives us the impression of having an advantage over other people, and thus of being better able than them to cope with life. What we call our ego, then, is the petty side or product of ourselves. By giving this a name, we can distance ourselves from it, and discuss it and hopefully cure it. This field of psychology of course deserves (and gets) much study and elaboration.

3. Identification-With

The recurring term in the above treatment is "identify with" – just what does it mean and indicate? It refers to some sort of epistemic and psychological mechanism, through which each of us assumes for a while himself or herself to have a certain identity described in imagination and verbally.

> With regard to the mechanism through which we identify with each of these aspects of selfhood, consider how after meeting an impressive person, or reading a book on ethics or a novel, or hearing a song or seeing a movie, one may be susceptible to identifying for a while with the person or personality-type or protagonist encountered. One may go so far as to virtually become one with this role model for a while – not by conscious artifice, role-play or imitation, but by a sort of "*personality induction*".
>
> One's thoughts, attitudes and actions echo the model's, and one may even experience that one's

> body feels like his[87]. The way the latter experience occurs is that one interprets one's body sensations through the memory image one has of the model. More precisely, the touch sensations coming from one's face or the rest of one's body are mentally *unified* by means of that image (instead of one's own). This integrative mechanism relates to the 'correlation of modalities,' and involves a visual projection (either internal or hallucinatory).

I[88] posit two senses of "self" – (a) the **real self**, a natural entity with some continuity while existing, perhaps a spiritual epiphenomenon emerging within living matter of some complexity, which self is the Subject of consciousness and Agent of Will; and (b) the imagined self or **ego**, a constructed presumed description of the self, which has no consciousness or will, but is itself a product of them. The former is our factual identity, the latter is what we delusively identify with, by confusing it with knowledge of our identity.

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87 I personally immediately block such fantasies when I become aware of them, though in my youth I would on occasion indulge in them. Many people are evidently unable, or more precisely unwilling or untrained, to control such personality induction, and end up floating hither and thither in borrowed identities.

88 Following Western tradition rather than the more radical Buddhist thesis, for now at least.

Initially, the ego is constructed as a legitimate attempt to summarize information directly or indirectly produced by the real self. But the project gets out of hand, in view of its extreme complexity and the superhuman demands of objectivity and honesty involved. So in contrast to our identity – or more precisely, knowledge of our identity – we find ourselves facing a partly or largely fanciful construct, which does not entirely correspond to the original. This falsely projected identity influences the real self negatively, causing it to lose touch with itself. The ego thus involves *some* self-awareness, plus a lot of bull. It is a half-truth, which interferes with proper cognition, volition and valuation, and so presents us with epistemological, psychological, behavioral, emotional and social problems to be solved. The best solution is regular meditation, which allows us to gradually sort out the grain from the chaff, and return to a healthy and realistic self-knowledge.

Thus, we have two concepts of self, logically distinguished as follows.

a) One concept is *ideal*, in that its object or content is the real self, the self as it really is however that be. This is a hypothetical, philosophical concept, because it points to something that we know somewhat but not really in detail; we need it to be able to say something about the assumed real self, so we have this separate, minimalist concept, which is by definition true, i.e. the receptacle of whatever happens to be true.

b) The other concept is the *practical* one, wherein we readily build up our knowledge and imagination concerning the self. This one is by definition flawed, because all knowledge is somewhat flawed since we are fallible, and all the more so knowledge of the self, because of the subjectivities and psychological and social pressures involved in its formulation. The object or content of this concept is partly the real self (basic knowledge) and largely the imagined self (some true propositions, some false). For this reason, we distinctively name the referent "ego," to stress that for most of us the concept is bound to be considerably untrue.

Thus, it is correct to say, as the Buddhists do, that the self, in the sense of ego, does not exist. For it is the object or content of a concept known to be partly untrue for most people (all except the "Enlightened", if they exist). In a strict sense, then, there is no ego, the concept is empty, has no real referent[89] – what it intends in practice does not in fact exist, but involves projections of the imagination and verbal constructions. Nevertheless, the self, in the minimalist sense, exists. The concept of it collects only our true and sure knowledge about the self, to the exclusion of any fanciful details.

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89 Just as, say, the concept of a "unicorn" has no real referent (though horses and horns are real enough, separately).

The reader may have remarked that even while valiantly fighting the Buddhist doctrine of "no-self," I remain intrigued and attracted by it[90]. Especially since that philosophy seems to claim that it is *only* by throwing off the idea that we have a self that we can achieve enlightenment and liberation. I do not want to make the proverbial mistake of throwing out the baby with the bath water. One possible interpretation of this doctrine, that would explain it while retaining the concept of soul (which to me still seems unavoidable), would be that it is intended to counteract our above described tendency to identify with some of the factors of self.

When we identify with some theoretical or fantastic idea of the self, we are *merely projecting a phenomenal self and saying "that's me!"* A projected image is confused with the one projecting it. This is very different from *being aware of one's real self through direct intuition* of it. Thus, we are effectively told, "if you want to find yourself, don't look for yourself in different concepts or

90 For me the idea that there is no self has the same fascination as the conclusion of Einstein's Relativity theory that there is no 'ether.' This concept of a substance in empty space, or of existence as such, was (I believe) originally suggested by Descartes. I personally find it difficult to grasp how the waves of field theory can be waves of nothing. Yet I am well aware that Einstein's conclusion is unavoidable, given the constancy of the speed of light whatever the observer's direction of motion. Conversely, if a no-ether is conceivable, why not a no-self?

images, but simply look into your soul. Rather than *thinking* of yourself or worse still thinking up a self for yourself, just *be* yourself and you will thus naturally get to know yourself." Perhaps it is that simple.

> The self-ego distinction can be illustrated with reference to **Figure 2**.
>
> The innermost concentric circle (called soul, and including the functions of cognition, volition and valuation) symbolizes the self in the most accurate sense of the term. This is sometimes called the real or true self, or higher or deeper self, to variously signify its relative position.
>
> The circles labeled mind and body (including their stated functions) together constitute the ego, or 'self' in an inaccurate sense of the term. This is sometimes called the illusory or false self, or lower or shallower self, to variously signify its relative position. (To be sure, more materialistic people identify especially with their body, whereas more mental people identify especially with their mind. But mind and body are inextricably intertwined, in their sensory, motor, emotional and intellectual functions.)

The important thing to realize is that soul (the self) is of a different substance (spirit) than mind or matter (the ego). The former is the core of one's existence; the latter are mere outer shells. When we identify with the ego instead of soul, we lose touch with our actual position as observer, doer and feeler.

4. Ideal and Practical Concepts

Now, the above insights concerning the concept of self can be generalized to all concepts. That is, the same logical analysis can be applied in relation to any predication. We have on the one hand an ideal concept of some established object, which by definition contains *only truths, known or yet unknown,* about the object. And on the other hand, we have the practical concept, which we know to be inductive, subject to change – development, correction and improvement – and therefore by definition *to some knowable but unknown extent untrue*. The ideal concept thus has a wholly real (though relatively bare) content, whereas the practical concept has a partly real and partly unreal (though much richer) content.

Strictly speaking, then, the practical concept intends a non-existent object, while the ideal concept allows us to intend the nevertheless existing object. We need both of them for our discourse; they are complementary. The ideal concept is one portion of the practical, which also includes more doubtful elements or aspects. Careful knowledge acquisition, which may be aided by meditation, consists in being at all times aware to the maximum extent of the epistemological status (true or

false, or certain or uncertain to what degree) of each item of knowledge. That is, to know at any given time what part of each concept is the basic-ideal part and what remainder is the tentative-practical part. To remember at all times that knowledge is something always in flux, which it is our responsibility to evaluate repeatedly to remain in touch with reality.

Just as the Buddhists deny "selfhood" to people, they deny "essence" to all other things. For them, this is one and the same error; the former being just a special case of, or alternatively causing, the latter. Our explanation of their position would be that they are referring to what we have just called practical concepts: their contents are indeed unlikely to fully correspond to real essence or selfhood. As for ideal concepts, they are not "empty," since their intention is by definition whatever happens to be real, whether or not it is known. Even in Buddhism, concepts like those of "mind ground" or "nirvana" must be admitted to be exceptions to the rule of emptiness, since they are effectively treated as the ultimate essence of things and people.

Notwithstanding, with a view to keeping an open mind in relation to this interesting Buddhist doctrine, we should *at least experimentally* attempt to construct a meditation and discourse gradually free from projections of self and the subject-predicate relation (predication).

> For instance, in meditation, instead of thinking "I must become aware of my breath", think "become aware of breath" (thus diverting attention away

from self, though still with an injunction), then think "awareness of breath" (thus getting away from a sense of active willing, of intensifying awareness and directing it towards the breath), then think "breath" (thus removing the relation implied by "of"), then just *be* wordlessly aware of breath (a pure phenomenon).

Thus, without adhering to Nagarjuna's fallacious discourse[91], gradually pursue wordless awareness, dropping the "I" (Subject), then instead of propositions (which use subjects and predicates) use only lone terms (verbalized concepts), then focus on the content of such terms (the event intended, without the word), then abandon the injunction to "think" of it and just experience such content inactively. All this merely goes back down the chain of conceptualization, and it is of course easier to learn not to go up it in the first place (at least not during such meditation).

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91 See my work *Buddhist Illogic* with regard to Nagarjuna's arguments.

5. Fallacious Criticisms of Selfhood

Since writing *Buddhist Illogic*, I have been reviewing Buddhist arguments against selfhood more carefully, and I must say that – while they continue to inspire deeper awareness of philosophical issues in me – I increasingly find them unconvincing, especially with regard to logical standards.

Buddhists conceive of the self as a non-entity, an illusion produced by a set of surrounding circumstances ('causes and conditions'), like a hole in the middle of a framework (of matter or mind or whatever). But I have so far come across no convincing detailed formulation of this curious (but interesting) thesis, no clear statement that would explain how a vacuity can seemingly have consciousness, will and values. Until such a theory is presented, I continue to accept self as an entity (call it soul) of some substance (spirit, say). Such a self is apparently individual, but might well at a deeper level turn out to be universal. The individuation of soul might be an illusion due to narrow vision, just as the individuation of material bodies seems to be.

Criticisms of the idea of self are no substitute for a positive statement. It is admittedly hard to publicly (versus introspectively) and indubitably demonstrate the

existence of a soul, with personal powers of cognition, volition and affection. But this theory remains the most credible, in that the abstract categories it uses (entity, substance, property, causality) are already familiar and functional in other contexts. In contrast, the impersonal thesis remains mysterious, however open-minded we try to be. It may be useful for meditation purposes, but as a philosophical proposition it seems wanting.

Generally speaking, I observe that those who attempt to rationalize the Buddhist no-self thesis indulge in too-vague formulations, unjustified generalizations and other *non sequiturs*. A case in point is the work *Lotus in a Stream* by Hsing Yun[92], which I have recently reread. The quotations given below as examples are from this work.

> *"Not only are all things impermanent, but they are also all devoid of self-nature. Having no self-nature means that all things depend on other things for their existence. Not one of them is independent and able to exist without other things" (pp. 86-87).*

Here, the imprecision of the term "existence" or "to exist" allows for misrepresentation. Western thought would readily admit that all (or perhaps most) things *come* to be and *continue* to be and *cease* to be and

92 See in particular chapters 7-9. (The author is a Chinese Buddhist monk, b. 1928.)

continue to not-be as a result of the arrival, presence, departure or absence of a variety of other things. But that is very different from saying that their *being* itself is dependent: for us, facts are facts, i.e. once a thing is a past or present fact, nothing can change that fact, it is not "dependent" on anything. Yet, I contend, Buddhists seem to be trying to deny this, and cause confusion by blurring the distinction between change *over* different time and place, and change *within* identical time and place.

> *"The meaning of the word 'things' in these statements is all phenomena, both formed and formless, all events, all mental acts, all laws, and anything else you can think of."*

Here, the suggestion is that impermanence concerns not only phenomena, which strictly speaking are material or mental objects of perception, but also abstract objects. The terms "formless" and "laws" and "anything you can think of" suggest this. But of course such a statement surreptitiously slips in something we would not readily grant, though we would easily admit that phenomena are impermanent. The whole point of a "law" is that it is a constant in the midst of change, something we conceive through our rational faculty as the common character of a multitude of changing phenomenal events. The principle of Impermanence is not supposed to apply to abstracts. Indeed, it is itself an abstract, considered not to be impermanent!

> *"To say that nothing has a self-nature is to say that nothing has any attribute that endures over*

> *long periods of time. There is no 'nature' that always stays the same in anything anywhere. If the 'nature' of a thing cannot possibly stay the same, then how can it really be a nature? Eventually everything changes and therefore nothing can be said to have a 'nature,' much less a self-nature."*

Here, the author obscures the issue of *how long* a period of time is – or can be – involved. Even admitting that phenomena cannot possibly endure forever, it does not follow that they do not endure at all. Who then is to say that an attribute cannot last as long as the thing it is an attribute of lasts? They are both phenomena, therefore they are both impermanent – but nothing precludes them from enduring for the same amount of time. The empirical truth is: some attributes come and/or go within the life of a phenomenal thing, and some are equally extended in time. Also, rates of change vary; they are not all the same. The author is evidently trying to impose a vision of things that will comfort his extreme thesis.

We can, incidentally, conceive of different sorts of continuity of conjunctions of phenomena (see **Figure 4**). An essential attribute of a thing would coexist fully, like an underlying *thread* of equal time length. A weaker scenario of continuity would be a *chaining* of different events, such that the first shares some time with the second, which shares some with the third, and so forth, without the first and third, second and fourth and so on having time in common. In some cases, continuity may

be completely illusory, in that events *succeed* each other contiguously in time without sharing any time.

Hsing Yun goes on arguing:

> *"the body… is a delusion caused by a brief congregation of the physical and mental components of existence Just as a house is made of many parts that create an appearance, so the body… When those parts are separated, no self-nature will be found anywhere."*

That a house or human body is an aggregate of many separable elements, does not prove that when these elements are together (in a certain appropriate way, of course) they do not collectively produce something new. The whole may be more than its constituent parts, because the whole is not just the sum of the parts but an *effect* of theirs. The bricks of a house do not just add up to a house, but together become a house when placed side by side in certain ways; if placed apart (or together in the wrong way) they do not constitute a house (but at best a pile of bricks). Similarly for the atoms forming a molecule, the molecules forming a living cell, the cells causing a human organism. At each level, there is a *causal* interplay of parts, which produces something new that is more than the parts, something we call the whole, with its own distinct attributes and properties.

It is thus quite legitimate to suppose that when matter comes together in a certain way we call a live human body, it produces a new thing called the self or soul or spirit, which thing we regard as the essence of being

human because we attribute to it the powers of consciousness and volition that we evidently display (and which the constituent matter in us does not, as far as we can see, separately display). That this idea of self is a hypothesis may be readily admitted; but to anyone conscious of the inductive basis of most human knowledge that does not constitute a criticism (all science develops through hypotheses). The important point to note is that Buddhist commentators like this one give arguments that do not succeed in proving what they purport to prove.

Here are some more examples, relating to the notion of "emptiness":

> *"Dependent origination means that everything is produced from conditions and that nothing has an independent existence of its own. Everything is connected to everything else and everything is conditioned by everything else. 'Emptiness' is the word used to describe the fact that nothing has an independent nature of its own" (p. 94).*

Here, the reader should notice the vagueness of terms like "connection" or "conditioning". They are here used without nuance, without remark that very many kinds and degrees of causal relation may be involved. The impression made on the reader is that everything is *equally bound* to everything else, however far or near in space and time. But that is not merely untrue – it is conceptually untenable! Concepts of causality arise with reference to a specific relation, which some things have

with each other *and some things lack with each other*. If all things had *the same* causal relation to *all* other things, no concept of a causal relation would arise nor be needed. We can *very loosely* say that the cause of a cause of a thing is "causally related" to it, but causal logic teaches us that the cause of a cause of a thing is not always itself "a cause" of it in the strict sense. And even if it is, it may not be so in the same degree. It follows that Hsing Yun is here again misleading us.

> *"Emptiness does not mean nothingness… all things have being because they all do exist interdependently" (p.97).*

Here, the image communicated to us is that each thing, although in itself empty of substance, acquires existence through its infinity of relations (dependencies) to all other things, each of which is itself empty of substance. We must ask, is this theoretical scenario credible? Does an infinity of zeros add up to a non-zero? What are those "relations" between "things"? Are they not also "things"? Are they not also empty, in which case what gives *them* existence? The concept of relation implies the pre-existence of things being related (terms); if all that exists are relations, is the concept still meaningful?

Furthermore, what does interdependence (a.k.a. co-dependence) mean, exactly? Is an embrace in mid-air between two or more people equivalent to a mutual support? If I cannot support myself, can I support you? The notion is unconscionable.

> *"Nothing is unchangeable or unchanging. All phenomena exist in succession. They are always changing, being born, and dying."*

Here, the author has simply dropped out the (previously acknowledged) and very relevant fact of *enduring*. To convince us that the world is nothing but flux, he mentions birth, change and death – but eclipses the fact of living, if only for a little while! The phrase "they are always" does not necessarily mean "each of them in every moment."

> *"A cause (seed) becomes an effect (fruit), which itself contains the cause (seed) for another effect, and so on. The entire phenomenal world works just like this" (p. 98).*

Here, we are hastily dragged into a doubtful generalization. The description of the cycle of life, with procreation from generation to generation, does not necessarily fit other causal successions. Causation in the world of inanimate matter obeys its own laws, like Newton's Laws of Motion for example. There is nothing truly equivalent to reproduction in it, to my memory. To convince us, the author would have to be much more precise in his analogies. Philosophers have no literary license.

> *"If we were to break a body down into its constituent parts, the body would no longer exist as a body."*

So what? Is that meant to explain or prove "emptiness"? If you kill an animal and cut it up, of course you will not

find the life in it, or the consciousness it had, or its "animal nature". It does not follow that when the animal is alive and well, it lacks these things!

> *"The meanings of the words 'above' and 'below' depend on where we are. They do not have absolute meanings, It is like this with all words and all relationships between things" (p. 99).*

Again, a hasty generalization – from specifically relative terms to all words. Every grammarian knows that relative terms are just one type of term among others. That the former exist does not imply that the latter have the same character or properties. Similarly, Hsing Yun argues that the relativity of a word like "brightness" (our characterization of the brightness of a light is subjective and variable) exemplifies the relativity of all terms. But here again, he is passing from an obvious case to all cases, although many qualifications are based on stricter, scientific measurement. Moreover, describing how a piece of cloth may have various uses, as a shirt or as a skirt, he argues:

> *"It is the same piece of cloth in all cases, but since it is used differently, we have different names for it. All words are like this; their meanings depend on how and where they are used."*

This is supposed to convince us that words are "false and wavering" and help us to better understand emptiness. But the truthfulness and accuracy of language are clearly not at stake here, so the implied negative conclusion is

unwarranted. The proof is that we all understand precisely his description of the changing practical role of the piece of cloth. "Cloth can be used as shirt or as skirt" is a perfectly legitimate sentence involving the natural modality "can" and two predicates in disjunction for a single subject (A can be B or C). Of course, if one starts with the idea that language can only consist of sentences with two terms and one modality (A is B), then one will be confused by more complex situations. But if one's understanding of human thought is more developed, one does not fall into foolish conclusions.

Lastly, Hsing Yun refers to "the relative natures of our perceptions" to justify the idea of emptiness. He describes two people watching a snowfall, one is a poet sitting in his warm house, the other a homeless man shivering outdoors. The first hopes the snow will continue to fall, so he can enjoy watching it; the second fears that if the snow continues to fall, he may freeze to death. The author concludes:

> *"Both are seeing the same scenery, but since their conditions are different they perceive it very differently."*

Thus, perceptions are "false" and emptiness "underlies" them. Here again, his interpretation of the situation is tendentious, designed to buttress his preconceived doctrines. To be precise, the two people correctly perceive the (more or less) same snowy scene; what differs is their evaluation of *the biological consequences* of what they are perceiving (or more precisely still, what

they anticipate to further experience). There is no relativity of perception involved! We have two quite legitimate sentences, which are both probably true "I'll enjoy further snow" and "I'll be killed by further snow". "I" being the poet in one case and the poor man in the other case, there is no contradiction between them.

By arguments like those we have analyzed, Hsing Yun arrives at the overall conclusion that:

> *"The universe can only exist because all phenomena are empty. If phenomena were not empty, nothing could change or come into being. Being and emptiness are two sides of the same thing" (p. 100).*

But none of his premises or arguments permits us to infer or explicate such conclusion. It is a truism that if your cup is full, you cannot add to it; or if you have no room to move into, you cannot move. But this is not what the author is here talking about; the proposed thesis is of course much more radical, though still largely obscure. All we are offered are dogmatic statements, which repeat on and on what the Buddha is claimed to have said.

I am personally still quite willing to believe that the Buddha did say something enlightening about interdependence, impermanence, selflessness and emptiness, but the words used were apparently not very clear. I just hope that his difficulty was merely in finding the right words to express his insights, and that the reasoning behind those words was not as faulty as that I have encountered in the work of commentators so far!

Still, sentences like the following from the *Flower Garland Sutra* are deliciously pregnant with meaning, challenging us to keep digging[93]:

> *"When wind moves through emptiness, nothing really moves."*

93 For instance, is there a state of consciousness in which one experiences space-time as a static whole?

6. What "Emptiness" Might Be[94]

The following is an attempt to eclectically merge the Western and Indian idea of a 'soul' with aspects of the Buddhist idea that we are "empty" of any such substance. What might the 'soul' be, what its place in 'the world', what its 'mechanics'? Can we interpret and clarify the notion of "emptiness" intellectually?

> The Buddhist notion of "emptiness" (in its more extremist versions) is, as far as I am concerned to date, unconvincing. If anything is empty, it is the very concept of emptiness as used by them – for they never *clearly* define it or explain it. Philosophy cannot judge ideas that remain forever vague and Kafkaesque accusations. The onus is on the philosophers of emptiness to learn to express their ideas more verbally.

6.1 Imagine the soul as an entity in the manifold, of (say) spiritual substance, a very fine energy form somewhat distinct from the substances of the mental

94 This essay was initially written for the book *Buddhist Illogic*, but at the time I decided that it was not sufficiently exhaustive and consistent and did not belong there. I have since then improved it somewhat.

domain (that of imaginations) and of the material domain (that of physical phenomena, regarded as one's body and the world beyond one's body).[95]

6.2 While solipsism is a logically acceptable proposition, equally conceivable is the notion that the soul may be one among many in a large population of souls scattered in the sea of existence, which includes also the coarser mental and material energies. These spiritual entities may well have common natures and behavior tendencies, and be able to impact on each other and become aware of each other.

> Those many souls may conceivably be expressions of one and the same single Soul, and indeed mind and matter may also be expressions of that one Soul, which might perhaps be identified with (a rather Hindu viewpoint) or be a small emanation of (a more Jewish view) what we call God. Alternatively, the many souls may be interrelated more in the way of a network.
>
> The latter view could be earmarked as more Buddhist, if we focus on its doctrine of "interdependence." However, we can also consider Buddhism compatible with the idea of a collective or root Soul, if we focus on its doctrine of an "original, common ground of mind." This

95 Note that animists regard even plants and stones as spiritual.

> refers to a mental ocean, whence all thoughts splash up momentarily (as seemingly evident in meditation). At first individual and psychological, this original substance is eventually regarded as universal and metaphysical, on the basis of a positivistic argument[96] that since even material sensations are known only through mind, we can only suppose that everything is mind. Thus, not only 'thoughts,' but all 'things' are mere turbulences in this primordial magma. Even individual 'selves' are merely drops of this mental sea water that momentarily have the illusion of separateness and personal identity.

6.3 For each individual soul (as for the greater Soul as a whole), the mind, the body, and the world beyond, of more matter, mind and spirit energies, may all be just projected 'images' (a viewpoint close to Bishop Berkeley's in the West or Yogachara philosophers in Buddhism). This is not an affirmation by me, I am merely trying to demystify this theory and take it into consideration, note well.

> The term image, here, does not signify image *of* anything else. Such images are perhaps media of self-expression and discourse of the soul (or Soul). That is, the 'world around me' may be a

96 As I make clear elsewhere, I am not personally convinced by this extreme argument.

language the soul creates and uses to express itself and communicate with itself (and with other eventual souls).

Granting there are objectively are many souls, we can observe that these souls have many (perhaps most) of their images *in common*. This raises an important question, often asked in relation to such Idealism. *If our worlds (including the physical aspects) are personal imaginations, how come so much of their contents agree, and how is it that they seem to be subject to the same 'laws of nature'?*

One possible answer is to assume the many souls to be emanations of a central Soul (animal, human or Divine). In that case, it is no wonder that they share experiences and laws.

Alternatively, we could answer that like images just happen to be (or are by force of their nature and habits) repeatedly projected by the many souls. In this way, they seemingly share a world (in part, at least), even though it is an imaginary one. Having delusions in common, they have perceptions in common. They can thus interact in regular ways in a single apparent 'natural environment,' and develop collective knowledge, society, culture, technology, ethics, politics and history. Thus, we are not forced to assume one common, objective world. It may well be that each soul projects for itself certain images that other souls likewise project for themselves, and

these projected images happen to be the same upon comparison.

6.4 Viewed as a ball of subtle energy, the soul can well have its own spiritual 'mechanics' – its outer and inner shapes and motions, the creases and stirrings within it and at the interface with the mental and material (and spiritual) energies around it, the mathematics of the waves which traverse it and its environment, like a creature floating in the midst of the sea.

Consciousness and will, here viewed as different powers of projection, are the ways the soul interacts with itself and its supposed surrounds.

These wave-motion capacities of the soul, are naturally subject to some 'laws' – although the individual soul has some considerable leeway, it is not free to operate just any way it pleases, but tends to remain under most circumstances in certain fixed or repeated patterns. These (spiritual, psychological) 'laws' are often shared with other souls; but each of them may also have distinct constraints or habits – which gives each its individuality. Such common and individual 'laws' are their real underlying natures, as distinct from the image of 'nature' they may project.

In the event that the plurality of souls is explained by a single great Soul, there is even less difficulty in understanding how they may be subject to common laws. On the other hand, the individualities of the fragmentary souls require explanation. Here, we must suppose either an

intentional, voluntary relinquishment of power on the part of the great Soul (so that little souls have some ignorance and some freedom of action) or an involuntary sleep or weakness (which latter thesis is less acceptable if we identify the larger soul with God).

With regard to the great Soul as a whole, it may either be subject to limitations and forces in its consciousness and volition – or it may be independent of any such natural restrictions or determinations, totally open and free. Our concept of God opts for the latter version, of course – whence the characterizations of omniscient and omnipotent (and all-good, granting that evil is an aberration due to ignorance and impotence).

6.5 The motive and end result of theses like the above is ethical. They aim and serve to convince people that the individual soul can find liberation from the constraints or habits it is subject to, by realizing its unity with other individual souls. 'Realizing' here means transcending one's individuality by *becoming aware of, identifying oneself with and espousing the cause of*, other entities of the same substance, or the collective or root Soul. Thus, enlightenment and liberation are one and the same. Ultimately, the individuals are to abandon individuation and merge with all existence, melting back into the original source.

This doctrine presupposes that the individual soul self-constructs, and constructs the world around,

> in the sense that it defines (and thus effectively divides) itself out from the totality. This illusion of individuation is the sum of its creativity and activity, and also its crucial error. The individual soul does not of course create the world (which is its source); but it produces the virtual world of its particular world-view, which is its own prison and the basis of all its suffering, its "*samsara*."

Realizing the emptiness of self would be full awareness in practice that the limited self is an expression of the ignorance and stupidity that the limited self is locked into because of various beliefs and acts. Realizing the emptiness of other entities (material, mental and spiritual) around one, would be full awareness in practice that they are projections of the limited self, in the sense that such projection fragments a whole into parts. Ultimately, too, the soul is advised to realize that Soul, souls and their respective projections are one continuum.

> Those who make the above-implied promises of enlightenment and liberation claim justification through personal meditative experiences or prophetic revelations. I have no such first-hand experience or authority, but here merely try to report and elucidate such doctrines, to check their conceivability and understand them. To me, no one making philosophical utterances can claim special privileges; all philosophers are equally required to present clear ideas and convincing arguments.

6.6 The way to such realization is through meditation, as well as altruistic and sane action.

In the framework of the above-mentioned Buddhist philosophy of "original ground" (also called "Buddha mind"), meditation may be viewed as an attempt to return to that profound, natural, eternal calm. Those who attain this level of awareness are said to be in "*nirvana*." The illusion of (particular, individual) selfhood arises from disturbances[97], and ceases with their quieting. The doctrine that the illusory self is "empty," means that we must not identify with any superficial flashes of material or mental excitement, but remain grounded in the Buddha mind.

> For example, the Tibetan work *The Summary of Philosophical Systems*[98] warns against the self being either differentiated from or identified with "the psycho-physical constituents." I interpret this statement (deliberately ignoring its paradoxical

97 It is not clear to me how these disturbances are supposed by this theory to arise in the beginning. But this issue is not limited to Buddhism: for philosophers in general, the question is *how did the one become many*; for physicists, it is *what started the Big Bang*; for monotheists, it is *why did God suddenly decide to create the universe*? A deeper question still is *how did the existence arise in the first place*, or in Buddhism, *where did the original ground come from*?

98 See Guenther, p. 67.

intent[99]) to mean that there is nothing more to the illusory self than these phenomenal manifestations, and therefore that they cannot be the real self. Dogmatic Buddhists provocatively[100] insist that no real self exists, but moderates do seem to admit it as equivalent to the universal, original ground.

Buddhist philosophers generally admit of perception and conception, but ignore or deny direct self-awareness. Consistently enough, they reject any claim to a soul (spiritual substance), since they consider that we have no real experience thereof. For them, the "psycho-physical constituents" are all we ordinarily experience or think about, so that soul must be "empty" (of anything but these constituents) and illusory (since these are not enough to constitute a soul). But this theory does not specify or explain the type of consciousness involved in the Buddha mind, or through which "emptiness" is known!

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99 Having dealt with the fallacy of the tetralemma in my *Buddhist Illogic.*

100 Looking at the history of Indian philosophy, one cannot but notice the *one-upmanship* involved in its development. The concept of samsara (which I believe was originally intended as one of totality, albeit a cyclical one) was trumped by that of nirvana (again a totality, though beyond cycles), which was then in turn surpassed by that of "neither samsara nor nirvana, nor both" (the Middle Way version). Similarly, the concept of no-self is intended to outdo that of Self.

Another way to view things is to admit that there are *three* sources of knowledge, the perceptual (which gives us material and mental phenomenal manifestations), the conceptual (which gives us abstracts), and thirdly the intuitive (which gives us self-knowledge, apperception of the self and its particular cognitions, volitions and valuations). Accordingly, we ought to acknowledge in addition to material and mental substances, a spiritual substance (of which souls are made, or the ultimate Soul). The latter mode of consciousness may explain not only our everyday intuitions of self, but perhaps also the higher levels of meditation.

What we ordinarily consider our "self" is, as we have seen earlier, an impression or concept, based on perception and conception, as well as on intuitive experience. In this perspective, so long as we are too absorbed in the perceptual and conceptual fields (physical sensations, imaginations, feelings and emotions, words and thoughts, etc.), we are confused and identify with an illusory self. To make contact with our real (individual, or eventually universal) self, we must concentrate more fully on the intuitive field. With patience, if we allow the more sensational and exciting presentations to pass away, we begin to become aware of the finer, spiritual aspects of experience. That is meditation.

(See also **Appendix 2**).

6. ADDITIONAL TOPICS

1. Present Appearances

1.1 **The Present Appearance.** The starting point of human knowledge (or opinion[101]) is what I shall here call the present Appearance (with a capital A), referring to ***the undivided totality of one's experience and thought at a given moment, taken at face value***. This is to be distinguished from appearances (with a small a), the **constituents** of the present Appearance, whose discrimination from each other require additional acts of thought, although the present totality may well include among its constituents discrimination between some of its constituents. It is also to be distinguished from **cumulative** appearance (or Appearance), a theoretical concept including not only the present moment, but also memory of all past Appearances, although the present Appearance may well include some memories of past Appearances.

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101 I shall not keep repeating this. Strictly speaking, we count as knowledge only opinion that has been thoroughly checked, and evaluated by us as the best currently available in the cumulative context. But more loosely, the terms may be considered equivalent, in that we tend to regard our current opinions as knowledge!

These distinctions may seem like hair-splitting, but the point of the exercise is to draw the reader's attention to the fact that *moment by moment each of us is face to face with a limited sum total of objects or contents of consciousness* (whatever their nature and status, at this stage), and that this totality includes both:

a) *experiential* presentations – perceived material or mental phenomena and supposedly intuited[102] items of self-knowledge, be they real or illusory; and
b) *rational* presentations – products of conceptual or logical insights and processes, be they inductive or deductive, correct or incorrect.

Before any item of knowledge (or opinion) is isolated from its context for evaluation, it is immersed in the body of data in our present awareness; my intent here is to focus your attention first on this (varying) whole.

My initial goal here is simply *to enlarge* the phenomenological stance or approach, and apply it equally to all appearances, i.e. not only to perceptual phenomena, but equally to objects of intuitive experience and to rational objects and processes. The present

102 I label 'intuition' our intimate, innermost knowledge of our self and its cognitions, affections and volitions. Such objects are experienced particulars, sharing with concrete phenomena the character of being cognized without rational process, but they resemble abstracts in having none of the 'sensible qualities' that distinguish material and mental phenomena. For further clarifications of these other terms used, please refer to the previous chapters.

Appearance is a complex intertwining of all these, logically prior to making any distinctions between them, acknowledging them all at this stage as just there.

Just as, before we can identify the nature of the phenomena of perception and judge whether they are real or illusory, we have to first simply be aware of and admit their *existence* and manifest *configurations* – so with regard to the objects of intuition and the abstract products of conception and logic, the first step is to take into consideration their contents and claims. This *ab initio* stance or approach does not in itself prejudice our final judgment concerning the identity or validity of reason, anymore than it affects our evaluation of experience. It is merely ascertaining just what is under scrutiny and discussion. Nevertheless, such open-minded consideration does indeed, in the long run, strongly determine epistemological and ontological conclusions. Many philosophical conundrums and perversions are due to failure to adopt this 'objective' frame of mind, taking all things at their 'face value' to start with, as appearances or presentations.

'Phenomenon' is a philosophical term intended to deal with objects of perceptual consciousness, without regard to various epistemological and ontological issues concerning them, such as whether they are real or illusory, material or mental, results of physiological sensory processes or mere fantasies, and so forth. Before such issues can be debated and hopefully resolved, we have to just 'look and see' what data we have in hand.

Some distinctions between things are possible already at the phenomenal level – we can for instance distinguish the various 'phenomenal modalities' or the 'phenomenal qualities' within each phenomenal modality, without prejudice as to whether their source is sensory (although we label them conventionally as 'sense-based,' we only mean 'which naïve realism considers as sense-based') or imaginative. Or again, we can distinguish between 'material' and 'mental' phenomena (again using the words merely conventionally, with reference to people's everyday assumptions – but also somewhat with noticeable differences in their contents and qualities).

Philosophy has no terms similar to 'phenomenon' to refer to an intuitive experience or to an object of conception, prior to consideration of their exact nature and status. Kant's term 'noumenon' is inappropriate (and self-contradictory), in that it historically purports by definition to concern (and thus know) something unknowable. Locke's term 'idea' is also inappropriate, because its connotation of mental entity prejudices discussion at the outset and leads to serious problems and paradoxes. I propose here to henceforth[103] consider the term 'appearance' (or 'presentation') as more *generic* than 'phenomenon,' including concrete phenomenal appearances (i.e. percepts), concrete intuitive

[103] In my past works I have often used the terms 'appearance' and 'phenomenon' as about equivalent.

appearances (items of self-knowledge) and abstract appearances (conceptual and logical intentions). This larger term focuses on and emphasizes the primary '*manifest*' or '*given data*' aspect of all objects of consciousness, *considering them phenomenologically*, i.e. neutrally with regard to various philosophical issues.

The denotation of 'appearance' is the same as that of 'object,' but the former has the advantage of not tending to immediately connote the conscious Subject and his cognitive relation to the object (both of which some philosophers, notably Buddhist ones in the East and Hume[104] in the West, deny). Furthermore, the latter is often used with a naïve realist outlook, or with reference specifically to material entities, which we want to avoid, although strictly speaking the term is equally neutral (in my usage, at least). Similarly, the term 'thing' may have unwanted connotations (not clearly distinguishing existents and mere objects of thought), and in my opinion is best reserved for formal logic contexts. Thus, 'appearance' is the most appropriate term for phenomenology – and it is should be understood that phenomenology (despite its name) concerns all appearances not just phenomena.

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[104] "Hume does indeed suppose the existence of impressions which are 'unowned' – a very strange idea," according to Hamlyn (p. 198).

And finally, to repeat, note that by 'Appearance' I mean the sum total of appearances at a given moment. So much for terminological issues, which are also of course clarifications of what we are trying to discuss here.

> Before proceeding further, however, I want to here remind the reader not to confuse the present philosophical discussion of knowledge (starting with the concept of the present Appearance, etc.) with the subject-matter itself. Our words (and their underlying ideas and arguments) about the present Appearance and its eventual transformations are, as themselves objects, parts or components of our common present Appearance, but they are not all of it. There are Appearances (most of our conscious life) that do not actually include the present philosophical discourse, though they are here being claimed to potentially (logically, upon reflection) implicitly do so. There are Appearances that are completely wordless, and also Appearances involving words but not the words of this here philosophical discourse, which is a late arrival in the development of knowledge.

1.2 **A Meditation.** Our above verbal definition of the present Appearance will not by itself provide a good idea of my intent, if the reader merely imagines a field of non-descript 'appearances.' The best way to grasp it is to actually sit down and meditate, *zazen*-style, and become fully aware of the panorama of sights and sounds and

tastes and smells and sensations and of the images appearing in one's mind's eye and the words thought inside and their understood meanings – i.e. to become more fully conscious of whatever presents itself to one's attention right now. These experiences and thoughts are in flux, with one's attention shifting from one factor or process to another, often without rhyme or reason; they cannot be pinned-down or stopped, though continuous sitting over a long period tends to calm things down noticeably. What I mean by the present Appearance is the sum total of these multimedia events and characteristics at any given moment.

> Consider for example the Appearance I am facing right now (over the next few minutes, to be exact). I am sitting at my desk, in front of my computer, writing. Many things fill my awareness, though to different degrees. I feel parts of my body, my behind weighing down on my chair, my back leaning against the back of it, my legs crossed, a pain in my knee, a foot on the floor, my hands on the keyboard, my fingers hitting the keys. I see the sunlight, the frame of my glasses, the desk and computer, its screen and the words on it. I hear a bird sing, a plane overhead, a car drive by. All these are sensory experiences, physical phenomena in my field of awareness. I may at times experience them more intensely, at others only peripherally, at others still become so absorbed in my work as not to

notice them at all. Additionally, there are mental experiences. As I write words, I hear them inside my head. Occasionally, a relevant pictorial representation may flash in my mind's eye – a body in motion, a Cartesian space-time diagram, whatever. Extraneous mental words or images may come and go – such as 'remember to do so and so tomorrow' or a scene from a movie I saw yesterday.

Moreover, apart from the phenomenal aspects of my current consciousness, we have to take note of its intuitive and abstract aspects. The thoughts I am having are *mine*, I have to call on *discipline* to keep sitting and writing, I am trying to be as intellectually *honest and fair* as I can – these are intuitive components of my conscious content. The words I think and write have intended *meanings*, they are not mere sounds and letters, behind them is a large *context of knowledge* that I draw on, and I am constantly *applying logical skills* to ensure a quality product – these are abstract components of my conscious content. The present Appearance, then, is the sum of these three aspects, the phenomenal (material or mental), the intuitive (self-awareness) and the abstract (conceptual and logical). I am not at all times aware of them with equal intensity. Most of the time, I am absorbed in the subject-matter of my discourse, but I must still half-consciously

look at the desired keys and guide my fingers to them as I type. My attention shifts from this detail to that, one moment into the meaning of a word, the next into a logical issue, then I feel a pain in my arm and press on it, and so on.

Thus, no two momentary appearances are identical, although the various factors and processes mentioned above may together last several hours. The scope of a given moment's awareness will include only some of these items, though over time all may appear. Over time, some will momentarily come to the fore, others recede; some will be the center of my attention, others only vaguely present on the periphery. Such variations and differences may be understood as changes in direction and intensity of awareness (as regards the Subject) or more phenomenologically as comings and goings and changing intensities of manifestation (as regards Appearance).

What we call appearance is a very complex and varied thing, which cannot be reduced to or limited to the more obvious sensory data. Note that the various constituents of appearance may not *all* be actually present in a given present Appearance. It may be correct to say, however, that most are usually present, if only peripherally. Perhaps we should consider that each constituent is potentially present, though it may not be a major focus of attention at a given moment, compared to the others.

Note also that our turning of attention on one or the other factor may be experienced as spontaneous or as the result of will.

The present Appearance, then, is whatever appears to someone at any time, considered as a whole, temporally or logically *prior to* any discrimination or judgment concerning it or its constituents, i.e. before or irrespective of any further reflection of reason. It is *mere presentation, raw data*. At this stage of things, we may be completely absorbed in it and unconscious of precise details. There is no prejudice, at this primary stage, as to whether what appears is 'true' or 'false,' 'reality' or 'illusion,' 'representative' of anything or not, 'absolute' or 'relative.' All these and similar characterizations are later developments (rational acts), though within some moments they may well be present as themselves 'constituents of' the present Appearance.

> We have not or not yet discriminated between the 'parts' or 'components' of the present Appearance. We have not or not yet compared and contrasted its parts or components, finding them same or different to each other or to memories in various respects. We have not or not yet applied any logic to it; at this stage we have just a single 'A' and have not said 'A is A' or 'A cannot be non-A' or 'either A or non-A.' We have not either considered whether what we face is perceptual or conceptual, concrete or abstract, physical or mental, objective or subjective,

internal or external, or whatever. We have not or not yet made a distinction between its various 'sense-modalities' (sight, sound, touch, smell, taste), nor between the various 'sensible qualities' (e.g. shape, size, intensity or color, in the case of visual aspects). We have not or not yet located things in space, or developed notions of perspective or space dimensions. We have not or not yet separated pure present from memories and anticipations, or located things in a dimension of time. We have not or not yet engaged in the ordering of given data by which we divide it into Subject, consciousness, Object, self, intimate events and characters, mind, own-body, sense-organs, other physical bodies.

We have not or not yet performed any such *rational* acts (rational in the sense of proposed by reason, whether rightly or wrongly). If later we are able to and do subdivide the present Appearance into such factors and processes, the particular appearances such subdivisions constitute (whatever their own nature, whatever they themselves happen to be – even if abstract, conceptual and logical) are themselves parts or components of the present Appearance at the time they occur. Thus, the present Appearance may sometimes indeed well include 'philosophical' reflections, but we here consider them as at the time concerned inherent in the given particular

present Appearance. It always remains a comprehensive whole, in this perspective.

Some may argue that such a totality is unconscionable, that we can never in practice absorb ourselves in the whole without at the same time discriminating at least some of its aspects. Others will agree that ordinary consciousness is compulsively discriminative, but claim that we can overcome such handicap through meditation. But what I refer to here is just being aware of whatever you happen to be aware of right now, or at any given moment, including any eventual discriminations themselves involved in the whole. This is accessible to all, at all times, without special skill or training, at least for a brief while. In any case, the present Appearance is at least theoretically comprehensible, ex post facto, by logical aggregation of its constituents into the intended whole.

1.3 **Temporal Aspects.** Now, granting the above is understood, it is important next to clearly acknowledge the present Appearance's temporal aspects.

By *a moment*, I here mean a duration of time (as distinct from an instant, which is a point in time, the beginning or end of a duration) spanned by one's attention. And I refer to it verbally for the purposes of this analysis, but in the moment itself there may not be or not yet be any concept of time or of attention. It is merely mentioned to direct the reader to the situation under consideration, namely that the present Appearance is extended to some extent over what we later refer to as time (objective or

subjective). The boundaries of the moment may well be unclear, such uncertainty being itself a 'constituent of' the present Appearance. But the latter is still undifferentiated, so one's eventual doubt about limits has not yet crystallized.

Moment after moment, we are presented with a 'new' present Appearance. We refer to it as *new*, with reference to 'memory,' implying that a comparison is occurring between the present Appearance and a preceding Appearance, and that these are found in some respect(s) different. Such comparison or contrast is of course a rational act, full of assumptions about the 'validity' of memory. This is not denied, and we may return to the issue. But for now let us merely note this evidence, that the present Appearance *seems* limited in 'time.' Notwithstanding that the present Appearance is something singular in its temporal existence within our consciousness, there are *seemingly a plurality* of Appearances anyway. The remembrance of 'past' Appearances is itself of course part of the 'present' Appearance, and its distinction from the whole is an artificial, i.e. rational, act.

Next, we have to be aware that *if* in any given moment, relative to the given present Appearance, a new rational act occurs (such as the ones just proposed, of distinguishing memory of past Appearances within the present one or anticipating future Appearances), the present Appearance is thereby *changed*. That is to say, the addition of a new thought produces a new present

Appearance, so that the one we seem to have faced a moment ago is strictly-speaking not quite identical to the one we face now. The present Appearance currently under scrutiny includes this new thought, which was intended to transcend the preceding present Appearance without affecting it. Thus, if I face a present Appearance and even just name it 'A,' I am no longer in present Appearance A but (momentarily, at least) in a new present Appearance which includes 'name A' in its composition, and so would have to be named something else, say 'B,' which in turn would cause the occurrence of yet a third, and so on.

This fragility of any present Appearance has to be clearly realized. More generally stated, the moment we focus on any aspect of a present Appearance, or distinguish its parts or components, or characterize it or them in any manner whatsoever, we perform a *rational* act. Such rational event involves phenomenal aspects (e.g. images and words) as well as non-phenomenal ones (intuitions, conceptualizations, logical verifications), whose appearance (whatever the cause of such appearance might be: spontaneous generation, a mechanical brain, or a Subject's volition) modify the original present Appearance, presenting us with a new present Appearance including the rational act and possibly all of the preceding present Appearance. In some cases, the rational act, by its very nature, not only adds to the preceding Appearance, but also erases parts or components of it. Thus, when I concentrate my attention

on the outlines of a figure, I see the outlines more intensely than before and somewhat or entirely cease to see its color and perhaps other figures in my field of vision. These now seen outlines are not quite identical to those seen a moment ago, and any comparison between them (between the present and my memory of the immediate past) would constitute a rational act. The latter would in turn modify the present Appearance, presenting me with a new one, and so forth.

Thus, we cannot claim to rationally 'transcend' any present Appearance and discuss it without admitting our discussion as itself within the (next) Appearance[105]. We can only seemingly produce (or find ourselves faced with) new Appearances, which by further rational acts (involving reliance on memory and other judgments) are successively transformed into still newer Appearances. Being aware of this fragility, we are better able to delimit what we mean by a single present Appearance or the current totality of experience and other conscious content. We are always bound to present Appearance.

Furthermore, we are all aware (or ought to be) that our minds are constantly and almost irrepressibly a-buzz with thoughts. This is especially evident when we try to still

105 Just as we cannot logically claim to know something outside Knowledge or that there are existents beyond the Universe or that there are miracles contrary to Nature – since concepts such as Knowledge, Universe, Nature are *by intent and definition* open-ended and *all*-inclusive.

our mind during meditation; it is a very, very difficult task. That is, the present Appearance is not merely occasionally changed by thought, it is almost always *in flux*. Only mastery of meditation can ever (supposedly) stop this constant activity. Even sitting still in the middle of a static environment (say a plain room where no sound enters, etc.), thought continues to affect the present Appearance (e.g. I notice the right side and then the left, or reflect on the color, etc. – not to mention extraneous thoughts such as my recent conversation with someone or what to add to my 'things to do' list or ongoing philosophical discourse or personal injunctions to be thoughtless), so that the present Appearance is always short-lived and changing. What this means, is that we can even generate a notion of time by referring only to the shifts in our attention, and more generally to our changing intuitive contents of consciousness and rational responses to experiences.

However, such so-called subjective time inextricably relies on analysis of a present Appearance and the assumption of memory. It is only by distinguishing a fraction of that Appearance as being a lingering image or memory residue of a preceding Appearance, and comparing that fraction to the remainder, that we can and do conclude that (subjective) 'time' has passed. But there is, I am convinced, a more 'objective' concept of time, based on the content of some Appearances *without reference to memory*. That is, we *see* (in the sense of 'perceive, by whatever means') some phenomenal

contents move or change (in place or otherwise) *within* the current span of attention. We may of course *additionally* remember that the entity, character or event concerned (whatever it be, real or illusory, physical or mental) was different in a previous present Appearance, but here what interests us is movement within a single, present Appearance.

Such movement within the moment, i.e. perceivable without reference to and assumption of memory, and so without rational activity, is *purely experiential* movement. It means that '*the present*' we perceive is not a point in time, but a stretch of time, a duration. That is, our consciousness of events is not instantaneous, but straddles time (at least, a bit of past to the present instant). This portion of time that our awareness can span is what I here call a phenomenal 'moment.' How long precisely such moments are is hard to say. It may be that they are all equal or they may differ from one present Appearance to another or one person to another. To affirm the experienced present as extended does not, by the way, logically exclude that time be infinitely divisible (continuous). Appearances may well constantly overlap and flow into each other, without affecting the fact that our consciousness of phenomena is extended in time.

It makes no difference whether one considers perceived movement as objective or subjective – in either case, the phenomenon still occurs, still exists. To say 'objects do not move, but are stationary world-lines in a space-time continuum; it is the Subject's awareness of them which

moves (scanning) or comes on and off and on again (like a stroboscope)' does not explain-away or erase the phenomenon of movement – for then we would still have to acknowledge and explain the Subject's motion over or through the continuum or the changes in his awareness. Similarly, whether we regard movement as continuous or as composed of instantaneous starts and momentary stops, is irrelevant – since in the latter case, too, we still have to deal with change from start to stop and vice-versa (i.e. that too is 'movement').

Our very concepts of time and memory are based on the direct experience of movement, so we cannot logically claim to know time only indirectly through memory. If we claimed that all experience was instantaneous, and that we only conceive of movement by rational acts – i.e. by mentally outlining within static Appearances a 'memory' segment and a 'non-memory' segment, and comparing these segments find that the former has enough similarities and dissimilarities to the latter to conclude that 'movement' has occurred – we would be begging the question. For all these mental acts are presumably themselves events, which in turn alter the present Appearance however slightly; and anyway we would be left with only a static picture of things or a static string of meaningless words! The *image or concept* of a geometrical time-dimension or time-line, however useful for purposes of measurement, is inextricably and infuriatingly *static*, and incapable of reproducing or representing movement. Only through *experience* can

movement itself be known and understood. Rational constructs such as time and memory are merely attempts to interpret and explain our experiences of movement somewhat, and cannot deny or replace them.

2. The Concepts of Space and Time

I have already made some comments about space and time in the chapter on Organizing Principles and in the above section. I wish to here make some additional comments.

2.1 Time and space are fundamental aspects of world of appearance, because they constitute for us logical solutions to apparent problems in momentary experiences or straddling experience over time. The apparent 'contradictions' inherent in multiplicity, non-uniformity, movement and change oblige us to resort to these conceptual remedies. Such fundamental concepts are not 'logical concepts' (as e.g. Jean Piaget regarded them) but products of logic. They come to seem like 'logical' concepts, because they are so broad-ranging that they structure all our thinking. But they remain *doctrines*, as far as logic is concerned. That is, they are proposed responses to issues raised by our logical insight. While specific hypotheses of the special sciences of time and space may in some future context have to be revised, logical insight continues to reign unscathed.

2.2 **Space** is a conceptual construct, in that it we presume a relational arrangement between the different parts of an experiential (primarily the visual) field. We

begin with a distinction between the *first two* dimensions of space and then find it wise to add the *third* dimension. The first two dimensions are more empirical; the third is more hypothetical. If one looks out at the world with one's eyes (or at an inner image with one's mind's eye), one seems faced with a two-dimensional blob of light (of variegated color, intensity, brightness); the third dimension is eventually distinguished out from these first two (partly to interpret the said variations).

Our 'sense' of space is primarily based on sight, but eventually built up from data drawn from several senses, including hearing, touch and to a lesser extent smell and taste. It is with reference to the combination and correlation of these sense-modalities that we obtain our full concept, even though sight remains the central reference. Note however that blind or deaf people seem to have a sense of space, but I assume it is an imperfect one compared to persons with all their senses (this matter can be studied by experiment and questionnaire). Even smell and taste are related to space: we can seemingly tell the rough direction from which a smell came; we locate tastes within the volume felt inside our mouth. Correlations with visual imagination and the sense of touch are of course involved, here. Smell and taste, per se, play a relatively secondary, passive role in our grasp of spatiality, but the same is perhaps not true for animals, or even babies.

Parallelisms between the sense-modalities are first gradually established for two dimensions, and then

extended into the third with reference to phenomena of motion and perspective. I must apparently move my hand or body to there to touch that place; sounds may vary in consequence of such displacements; things change shape as I or they move and I explain such changes through the laws of perspective.

Another set of factors involved in our construction of space is temporal. Space is not merely a moment-by-moment construct, but one that appeals to memory and anticipation. We collect *memories* of static and dynamic sense data concerning space and refer to these past occurrences to interpret present ones. Also, we use *mental projections* to express our interpretative hypotheses. For instance, I may think: "I would need to stretch out my hand thusly to touch that" to express spatial depth. Such imaginations may or not be put into action (of course, they must occasionally be or have been, to be confirmed), but may in any case be viewed as a futuristic aspect of our space concept.

All this goes to show that space is not apprehended immediately (merely as extension or distance in a visual screen), but is a complex concept built up using many factors. The Subject is *active* (whether instinctively or consciously) in this build up, intellectually in having to correlate very various experiences over time (a trial and error process) and even physically in having to experimentally move about, the whole body or members of it. It follows that *volition* is involved; one is not a mere

passive observer. Yet, for all that, I do not conclude like Kant seems to that space is a subjective invention.

All it means is that the concept of space is a complex *hypothesis*, consisting of many subsidiary hypotheses (like perspective or volition, to mention two). We do not simply see space (though sight is involved), nor can we deduce it from our experiences – we have to *induce* it. We propose it as a way of ordering of the various data of our experience. It remains conceivable that we are wrong. Indeed, we have been wrong for long periods, thinking of space as having Euclidean properties, until mathematicians suggested this did not have to be so and Einstein found need for a non-Euclidean approach in Physics. We may well be called upon by new experiences to tailor our view yet again; even conceivably completely overturning it somehow.

Meanwhile, in the context of experience and hypothesis so far, it seems logically the best ordering, ensuring the strongest correlation and least conflict between our masses of different sense impressions. We acknowledge thereby Appearance as a multiplex, and at the same time manage to 'make sense' of it to an additional extent.

2.3 **Time** is also a conceptual construct. The direct experience of time consists in awareness of the present, moment by moment – the "eternal present" (so-called, though it is only as long-lasting as the Subject lives). I say 'direct,' to differentiate it from the intimations of past

and future involved memory and anticipation, which we may regard as an indirect experience of time[106]. And I stress 'experience' to distinguish all this from the more intellectual construction of time, which comes later. Now, the present seems to have some ***duration*** or stretch, which is why I refer to it as a moment rather than as an instant. This temporal extension may not be constant for all observers at all times; sometimes we seem to be able to experience a larger chunk of time than at others.

For it seems evident that ***motion*** (i.e. movement in space or change of any kind) is in part phenomenal; it seems observable within a given moment, and is not merely a construct based on the comparison and contrast of the phenomenal situations in different moments. In other words, I am proposing that our consciousness can *straddle* a stretch of time and thus cognize segments of motion without appeal to memory or prediction. Such visible bits of motion are to be distinguished from larger segments, which are constructed with reference to alleged memories and predictions. The former motion is empirical; the latter involves certain assumptions.

The concept of time is built in response to the paradox inherent in all motion, whether phenomenal or inferred

106 Husserl seems to have regarded the past and future aspects of objects as an intrinsic component of their present, whereas for me they are built up out of the present by means of various assumptions and inductive processes. They are by no means given through any transcendental consciousness.

from memories or expectations. Movement or change, however gradual, signifies that something is so-and-so 'at one time' and something else 'at another time.' If we do not insert the qualifications 'at one time' and 'at another time,' the preceding definition of motion is self-contradictory, saying that something both is and is-not so-and-so. By means of these differentiating inserts, we dissolve the paradox. Thus, time is a *hypothesis* proposed to deal with a logically disturbing aspect of certain common experiences. We project an extension called time, similar in some ways to the spatial extensions[107], in which phenomena have partial existence – so as *to explain* how it is possible for them to vary before our very eyes (and indeed all our cognitive instruments).

Thus, time 'comes from' man in a sense, but it is also somewhat 'given in experience.' It is an *inductive* construct seemingly corroborated by experiences, rather than something directly experienced or an abstraction in the ordinary sense. In my view, the experience of phenomenal motion is indubitable; if motion were only known through memory and expectation, it would itself be hypothetical. In that case, time would not be a logically necessary response: we could also (and better) explain away the paradox inherent in motion by denying the reliability of memory and prediction. We must admit

107 But different in some respects: e.g. in having only one direction.

what we all experience daily, that (some) motion is empirically given.

This means that "the present" is extended, a duration and not a mere point of time. The hypothesis of time includes the distinction between past, present and future, which three elements it joins in a continuum. Note well, three elements, not two. If we arbitrarily cut time in two (past and future), viewing the present as but an instant, where would the present moment fit? Would it be part of the past or of the future or a bit of both? It is hard for us to tell, because a moment is so brief. I think the present is neither past nor future, so that the dichotomy past or future is artificial. The present is neither a residue nor an inchoate; it is distinctively here and now.

The above remarks do not of course even begin to fathom the mysteries of time; many queries remain. Why do we only directly experience the present? Are we stationary and events pass or is the world stationary and our spirit flies over it? Is the present always changing, or is it things that change while the present remains the same? What happens to the past or to past things, where do they go, or do they cease to be and what does that mean? Where are the future and future things, where do they come from, or do they come to be and what does that mean? Why are past, present and future different in their existential properties? What is the direction of time? These are some sample questions that come to mind, which I would not pretend to have (or have seen) answers to.

2.4 Some small additional comments on the distinctions between **inner and outer** (i.e. mental and physical) space and time. In this context, it is well to keep in mind that the phenomenal modalities and qualities perceptible in our mental world (color, shape, sound, etc.) are identical or similar to those perceived through the senses as being in the physical world. Such analogies force us to regards these domains as parts of one world.

With regard to space, it is more acceptable to posit an inner space in contrast to an outer space. For two different substances (the mental and the material) seem involved, and therefore two different fields or matrices are conceivable for them. We consider mental space as somewhat placed within material space, in that we tend to locate it in our heads[108]. Yet, even here we should perhaps not rush to judgment. For we must take into consideration the fact of *hallucination*: when we seemingly imagine things occurring outside ourselves. It may be that we think of imagination as in the head, because we usually do it with our eyes closed or because it is usually clearer that way. But there are circumstances when we are able to imagine with our eyes open[109]. It

108 But note that mystics lay claim to a very large mental space. One perhaps as large as material space, existing in parallel somehow. Or larger still, and including it.

109 If we pay attention, it is evident that some degree of hallucination is possible in ordinary situations, and not only in

remains conceivable in my view that the two spaces, the inner and outer, are one and the same.

Some philosophers apparently distinguish between inner and outer time, or psychological time and physical time, with reference to the common experience that little time o'clock may subjectively seem a lot and long hours may seem like minutes. Admittedly, one's happiness or patience or age[110], or whatever, evidently often have an effect on one's *guesstimates of duration* without measuring instruments. When I meditate in the middle of the night, when everything is quiet, time seems to pass much faster than when, in the day, there are enervating traffic noises all around. But this does not mean that there are literally two time dimensions.

The Subject, whether faced with imaginary events or physical events, has the same logical reaction for both,

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extreme conditions, like meditation, drugs or sickness. Also, as I have argued earlier, we need this ability to make certain judgments (e.g. in comparing phenomena). It is not so difficult to conceive how it might happen: since what we see is the front of light coming from an object impinging on our visual receptors, it is at that place of impact that projections from us outward would need occur. That these projections seem to be yet further out is a simple optical illusion, due to a superimposition. Thus, hallucination may simply be a distortion at the visual receptor (or perhaps even in the eye lens). Similarly for sound hallucinations.

110 The older we are, the feebler our memory seems to get, and the faster time seems to pass. This is perhaps a function of the strength of our memory - how quickly it fades.

the positing of a time dimension. It has to be a single framework for both kinds of event, or else it would not be possible to order them relative to each other, as indeed by the way the 'psychological time' proponents unthinkingly do anyway. (I of course do not mean here to contest the relativity of time measurement, as explained by Einstein, which concerns even physical time.)

3. Apprehension of the Four Dimensions

The four dimensions of our experience do not arise in knowledge in the same way; they are not all equally empirically based, involving different kinds and varying degrees of intellection, and they differ also in their assumed properties.

3.1 The **first two** dimensions of space refer to the flat field of (mainly) visual perception as presented to us phenomenally by the optical (and other) sense organs or by imagination in the mental matrix. This visual field is without depth, but testifies that the world of experience, whether physical or mental, is extended – a phenomenon we label space, distinguishing in it two aspects (called dimensions – length and breadth). The latter mental act of differentiation could rightly be characterized as an act of intelligence[111]. It requires a creative mental activity

111 Others might say, stupidity. I refer here, of course, to Zen claims to perceptual experience free of any intellectual interference. Buddhists ultimately regard intellection as stupidity, in that such judgments alienate man from pure contemplation of the phenomenon as it presents itself, breaking the nirvanic unity into a samsaric multiplicity. They may well be right; nevertheless, within a rationalist framework,

(consciously or not, projecting N-S and E-W lines – an imaginary grid – onto the visual field), and therefore (presumably) a certain involvement of the will.

Another act of intelligence, occurring already in a context of two dimensions, is the idea of *direction*, which includes not only projecting an angle of vision relative to some origin (a line on our grid), but also pointing one's finger or tracing a from-to trajectory with it. Direction is often also communicated symbolically, by the very prehistoric image of an arrow (this aspect being pure analogy to a specific visual experience of actual arrows, their trajectory along our line in space); the arrow can traverse the line in two ways, called directions, according as it eventually reaches one or the other end of the line. This concept is later reused in the other two dimensions.

Visual experience is of course amplified by experiences in other sense-modalities. Thus, the frequent roving of one's eyes up and down or left and right amplifies our sense of two-dimensional space. Other touch sensations, such as running one's hand over a surface, likewise play a role, as do sensations of sound (and to a much lesser extent – for adult humans, at least – smell and taste).

3.2 The **third** space dimension arises in the observer in a more complex manner, involving more abstract considerations and a more active role for the observer. In

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differentiation would be counted among the acts of intelligence – so conventionally, at least, this term is appropriate.

the physical visual field, the assumption of depth (relative to the observer, me or you) serves to account for various phenomena, such as the different intensities of light and shade, apparent movement of distinct forms (i.e. shapes and colors selected by the observer as distinguishable), movement that may occasionally be experimentally assumed by the observer (potential involvement of volition) – things (granting continuity of phenomena) moving away-towards us (the origin or center of perception), getting bigger-smaller. Events that seem bizarre in a flat world become more understandable (explained, unified, predictable) in an assumed voluminous world.

In addition to such visual aspects, the touch-sensations in our eyes as we focus or unfocus them play a considerable role in convincing us of depth. Still other experiences must be taken into consideration too, such as feelings of bodily movement as well as pressure and roughness (touch sensations), sounds of varying loudness (hearing), smells in different directions and even the cavity in one's mouth.

In the mental field, the third dimension (broadening the term dimension to include it) is admittedly often virtually absent from the inner visual field; but that the third dimension can be projected in the mental matrix is doubtless being proved by the very question (which presumes – thus, admits – that it has been imagined). Furthermore, we can introspect our apparently doing it and dreams often seem three dimensional, anyway.

The third dimension arises to resolve puzzles inherent in experience, such as correlating different perspectives on a seemingly continuous phenomenon (throughout a movement) or correlating the messages in distinct sense-modalities (or due to different sense-organs), and more broadly to integrate various experiences (e.g. the apparent unity between different apparitions, allowing one to regard them as one phenomenon in motion). The observer imagines this new dimension and presents it to himself as a *credible hypothesis* so as to explain or explain away his various inquiries and concerns. In each specific situation, the initial hypothesis is taken for granted, though it might later be supplanted by another that seems equally or more credible (the process is inductive, an adduction).

The main puzzle we try to solve through the third dimension is the apparent contradiction in different perspectives of an object. As the observer apparently moves around (that is, as his own body goes through certain variations in shape or feel), the external object seems to change in certain respects. Man has found that by projecting a third dimension of space, he could account for the perceived variations in experience of the first two dimensions. He formed the concept of perspective – he discovered (to some extent invented, insofar as a mental projection was involved) the relativity of appearances and their possible interconnections.

In this proposed description of the emergence of the third dimension, we see that it arises as a quasi-experience, but

on closer inspection clearly involves inductive processes and imaginative projections of ideas and explanations. This is not a criticism, but intended to underline the different – more abstract, more conceptual, more active – status of the third dimension, in comparison to the first two. It is called a dimension by stretching of the meaning of the term dimension. It is assumed to have the same nature of extension, but more thought processes are required to conceive of it than to mentally separate the first and second dimensions from each other. These are acts of intelligence (a faculty of the observer), formulating concepts and frameworks, using imagination and inductive (including deductive) means, attempting to 'make sense of things.'

3.3 The **fourth** dimension – that of time – has a yet more distinct emergence. Time relates distinctively to the puzzle of movement. Movement (including forms of change, qualitative or structural, other than motion in space) is I suggest a primary object. That is, together with objects like shape or color it is an experiential *given*, empirical fact in the strictest sense of the term[112]. All such primaries contain puzzles to our minds, and we itch to resolve them somehow (by curiosity – or perhaps biological need).

In the case of movement, the puzzle is an apparent contradiction inherent in any movement: how can what

112 I discuss this more fully in *Buddhist Illogic*.

the observer has assumed is the ‘same’ thing, be somewhat ‘different’ in each of its many apparitions. The concepts of same or different are logical primaries; comparison and contrast are basic thinking processes. The impression that something is the same or different, following mere observation and followed by grouping and naming, gives rise to (or is at least the basis of) all abstraction, concept-formation, classification. For these reasons, movement stirs the observer to reconcile his conflicting impressions through some conceptual device. Man has chosen as his device against movement the idea of a fourth dimension.

But here, the concept of dimension must be stretched again, to allow for various distinctive characteristics of the proposed fourth. For a start, its different genesis, as described above. But then also, this additional dimension cannot be (however phenomenally) walked into like the others and only a single ‘direction’ (instead of two, like the others) must be posited for it (in order to account for the non-return of/to objects once overtaken in time, as against the apparent possibility of moving back and forth to or from an object stationary in space). A distinction arises between past and present and, at a later stage, future.

Clearly, one’s understanding of the other dimensions is also tainted by time, although more implicitly, in that one’s experimental body movements in search of perspective changes take time. But such understanding is ex post facto because the *concept* of time does not arise

until (or unless) the fourth dimension is postulated. More precisely, the notion of time historically (and in individuals) arises well before that of a fourth dimension; but as man has further reflected on the subject, he has realized (or come to believe) that time logically implies/requires a fourth dimension. Similarly, of course, space arises as a notion first, and is then further structured and buttressed as a concept by introduction of the three dimensions.

3.4 Clearly also, the concept of *memory* is deeply linked with those of change, time and a fourth dimension. The hypothesis of memory is one of the postulates in the complex theory that seeks to resolve the puzzle of movement. Its role is to explain, not where things go after they are past us (that's a purely time puzzle, an ontological one), but more introspectively how come we continue to be aware of something after it is gone (an epistemological puzzle). A "memory faculty" is proposed as at least an ability to store past impressions and observations (shunting aside the possibility of direct consciousness of past events as too heavy a postulate, initially at least). Just how such storage is possible is still mostly a mystery, but it suffices to suppose that it does occur somehow.

Memory is thus conceived to account for our apparent knowledge of past events that are no longer immediately present (in the phenomenal field currently observed). To account for the evident disappearance or waning of certain memories, we admit the idea that memory varies

in permanence and intensity and vary its reliability accordingly. In this context, various degrees and kinds of memory must be distinguished, based on our experiences of remembering – and forgetting. Sometimes it takes us more time and effort than others to recall something. Sometimes we can, voluntarily or not, *recollect* a representation (inwardly project an image) of past events with varying clarity and precision, while at other times we are only able to *recognize* an event reminded to us (that is, after it reappears to us in some guise) as similar to a past one (for instance, looking at an old school photo and recognizing a face one had totally 'forgotten' – in the sense that one had to be reminded of it).[113]

3.5 On the other hand, for *the future*, we propose no special faculty. We normally distrust apparent anticipations of phenomena, and regard them as fantasies. They are mental projections of what the future *might* but will not necessarily hold, and not sure forecasts. Some people believe in prophecy of the future, by themselves or by other people; but most people doubt this notion. The concept of a future as such arises by the intelligence that "if past events were once present, then present events '*will* at some time' be in their turn past."

The fourth dimension thus arises in three stages, first comes the currently experienced present, then comes the past in the form of mental images that we relate to other

113 In this context, see my *Future Logic,* chapter 62.2.

present events, calling them the ‘same’ entity at ‘different’ times, and only lastly comes the future, by way of the said intellectual act.

But though we believe *that* there is a future (without offhand denying the possibility that it might not happen), we do not necessarily subscribe to the idea that we always know *what* that future will contain. We do not therefore normally presume a faculty of seeing into the future itself, not even an imperfect one like memory. We do however believe we can ascertain what the future might or could hold (a more modal knowledge), and even estimate that such possible event will more likely occur than such other (probability rating – another logical act). That is, the content of the future is thought of as accessible by inductive means (including deductive means). An indirect knowledge through concepts, propositions and logical tests – a knowledge not imprinted by its object, since its object does not ‘yet’ exist other than within the mind conceiving it as a possibility or potentiality, and indeed such object may never actually (come to) exist.

3.6 Clearly, we must say that the fourth dimension, assigned to time, is considerably different in its foundation and properties to the preceding three, assigned to space. I say ‘preceding,’ not to insist that the conceptualization of time is temporally after that of 3-D space, but only to reflect the increasing difficulty and complexity of their respective genesis. I can conceive of space (of one, two or three dimensions) without time, a

static phenomenon, but not time without space (since time only arises given an experiential field of changing forms – we know of no movement without a manifest field of phenomena in an apparent space of one or more dimensions).

Another question would be, does time require a world of three dimensions of space? The answer would be that even one dimension suffices to give rise to the concept. We can certainly imagine a world without a third dimension of space, a phenomenal field of flat forms shifting around. The puzzle of perspective would be absent from such a world, but the puzzle of movement would remain, calling for the same conceptualization of time as did a three-dimensional world. Similarly, perhaps, for a world with one solitary dimension: segments of the world-line might be seen (if a mere line can at all be seen) to shift back and forth along it, which movements would be explicated by means of the time concept. But not of course, a zero dimensional world – such a point of existence is inconceivable (it would manifest nothing and therefore not be visible to any observer).

3.7 An issue that should be mentioned here is that of definition of "the present." In one view, the present is a point in time without extension, the current *instantaneous* boundary between the past and the future. However, this view is by its very nature the more intellectual, since points are not perceivable, but inferred from extensions (to repeat, as boundaries between them).

A more empirical view is to regard the present as extended in time, a *moment*, including a recent segment of the past (or perhaps straddling a bit of past and future, though that is a more difficult and conceptual position). This view is suggested by our apparent perception of movement (motion or change).

That is, if we grant movement to be an empirical given, a primary phenomenon, it means that we can apprehend some movement *with one look without using our memory*. If, on the other hand we said that movement is only knowable through memory, our above description of the concept of memory, as together with time an intellectual device for resolving the contradiction inherent in movement, would be weakened as being without empirical grounding. We may thus prefer to regard that we *perceive*, not merely static photographs of the phenomenal world, but indeed a cinematic display covering a certain stretch of time (the present moment). The static view of the phenomenal does not seem credible considering that the flash would be too 'quick' for us to register that anything at all occurred!

This view of the present as momentary does not exclude that memory come into play peripherally, *in addition to* perception, to further ground the present into the past. Such memory work is of course intellectual, involving judgments of continuity and causality (between the experienced moment and preceding ones no longer actual but suggested by memory). Inductive processes are involved, in that memory is of varying reliability and has

to always be reevaluated contextually. Moreover, we tend to think that the moments we perceive are of varying breadth, according to our mental states. In some states, they are very narrow, in others wider (some people even claim prophetic ability to perceive very large chunks or all of time – the 'timeless or eternal' present).

3.8 The above accounts only attempt to detail the early stages of apprehension of the four dimensions. Many additional questions are eventually encountered and answers proposed, as these concepts are further scrutinized and developed.

For example, questions as to whether space and time are infinite[114] or finite (and in the latter case, what its size might be), and what geometrical axioms/system(s) is/are applicable to them. Gradually other kinds and degrees of interdependence between space and time have thus been proposed. Notably[115], the idea of additional dimensions (conceived by post-Cartesian mathematicians by algebraic methods, generalizing from the initial dimensions), Einstein's view of space and time as bound together more deeply still (for instance, in his theory of Relativity, events separated by space cannot readily be

114 A notion fraught with difficulties. See my *Future Logic*, chapter 66.3.

115 Not to mention the revolutionary ideas of quantum mechanics, according to which a particle does not have a specific place at a given time but only variously probable positions – really, not just in knowledge (Bohr).

granted simultaneity[116]), and Hawking's suggestions that time has a beginning if not an end, and that space may expand (the Big Bang) and perhaps contract (the Big Crunch)[117].

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116 What Einstein brought into consideration here is the issue of *the measurement* of space and time. How we come to measure them is quite a different issue to the one treated in the present exposé, as to the apprehension of space or time as such, irrespective of precise magnitudes. His innovation was the simple realization that our measurements of space and time are not made with an absolute measuring rod or clock, standing outside of them, but rely entirely on comparisons between phenomenal events – they are relative to practical acts involving movements of bodies or waves. Given this insight, the constancy of the velocity of light has deep implications regarding the structure of space-time.

117 I must say that such ideas remain for me very uncertain. The suggestion that space and time are not infinite seems at first sight logically evident to me – I have ongoing misgivings about the very notion of infinity – but that existence can suddenly appear *ex nihilo* is also something hard to accept. (The idea of an infinite spiritual being – God - creating a finite material world – the kabbalistic *tsimtsum* theory comes to mind - is of course an attempted compromise between these two positions – though one with its own difficulties.) The newer suggestion that space-time might expand or contract seems conceptually more problematic still (I am not of course ignoring Hubble). Note well that this suggestion is that expansion of the universe (matter, including the space-time between its manifestations) is not expansion into a *preexisting* continuum, but is a deformation of space-time itself, *into nothingness* (as if nothingness is something). Similarly with regard to the reverse, contraction. I do not object to the denial that space and time are empty receptacles, inclining rather to the idea that what we call matter (or indeed mind) is merely

These are however much later stages in development of the concepts of space and time, which arose in response to a large array of puzzles in the behavior of objects (e.g. the constancy of the velocity of light) as well as through complex theoretical reflections and calculations. Epistemologically, such further reflections on the possible nature of space and time are clearly highly intellectual and inductive. For most individuals, throughout most of history, advanced notions like Einstein's do not play a role in their concepts of space and time. What matters to everyone are the said basic puzzles, such as that of movement (in response to which the very concepts of perspective and a third dimension and of time and a fourth dimension arise).

Many questions about space and time remain unanswered to date. For instance, the notion that things 'travel in time' (at least in one direction), or the notion that 'time

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the visible disturbances *of* (not in) the fabric of space-time. Neither do I object to space-time being finite. What bugs me is that dilation of the fabric into nothingness signifies a sort of ongoing ex-nihilo coming into existence of (more) space-time. I do not (at least, not yet) see why we do not first try a less radical thesis, that perfectly 'calm' regions of space-time, i.e. regions devoid of material (or mental) activity like stars or galaxies, might exist already on the outskirts of the more active regions (visible to us due to such activity precisely), whether to infinity or with ultimate borders, so that expansion does not involve ex-nihilo becoming. But I admit to being largely ignorant of physics and maths, and so not qualified to judge!

flies,' to which we colloquially refer, is open to debate. As we have seen, the concept of time arises in an effort to understand movement in space (first the perceptible, later any conceptually assumed movement). Would not the idea (by analogy) of movement along a time-line be a doubling of the concept of time, calling perhaps for a further time-like dimension – is this not a redundancy, an unnecessary complication? Bound with this issue is the difficult ontological question as to what might be the meaning of 'ceasing to exist' or 'not yet existing.' Where do past things go when they disappear (do they remain in existence 'somewhere' in the past) and where do future things come from (are they waiting to appear in some repository 'placed' in the future)?

Clearly, until such problems are fully solved, our conceptual constructs of space and time remain scientifically immature. A theory has to always eventually resolve all puzzles, fill in all blank areas, tie up all loose ends – and do so better than any other – before it can be granted as finally trustworthy. Until then, some degree of epistemological doubt has to be maintained. Our concepts of space and time admittedly still need to be fleshed out a lot; but as for their competitiveness, we don't seem to have any ideas to replace the above described basic assumptions. So we may rely on them with some confidence – we don't seem to have much choice, anyway!

> The very latest theoretical discovery of physicists is 'M-Theory', according to which our world

involves *ten* dimensions of space and one of time (another theory, given less credence thus far, called F-Theory, proposes to add a second dimension of time to those). It is evident even to an amateur onlooker like me that these ideas (which have developed from String Theories of matter) are immensely interesting and far-reaching, addressing many of the issues just mentioned.

To conclude, though the four dimensions are all called dimensions, they do not arise in knowledge in the same way, they are not all equally empirical and they involve different kinds and varying degrees of rational activity (so that their epistemological status is not identical), and they differ also in their assumed ontological properties (in particular, time is conceived as different from space in various respects). These considerable differences may be glossed-over in some contexts, but should not be completely ignored in any discussion of the four dimensions.

4. Contents of Thought Processes

I wish to now briefly draw your attention to thought in the sense of the stream of verbal and non-verbal discourse in our heads, or in written or oral discussions between us. That is, consider the so-called 'phenomenon' or 'experience' of thought, which is part and parcel of our daily life, and cannot just be ignored as incidental. As is easy to see in the early phases of meditation, thought in one form or another is itself a constant intruder in our life experience. It does not stand aside and let us watch, but functions on and on. It is normally very hard for us to avoid, often grinding on even when we do not want or need it, oblivious to our will. Nevertheless, such involuntary thought may be erratic, and effort may be required for specific directions of thought.

The term 'thought' is pretty vague and used variably. Thinking, in the sense of a process, includes not only words – mentally or physically spoken (or written) verbal sequences, consisting of sounds (or other signs) with meanings, which point our attention to things other than themselves – but also: ongoing current perceptions and intuitions; occasional plunges into our memory banks; imaginations of things and events; intentions to mean; conceptual and logical insights, conceptualizations;

evaluations and emotional responses; intentions to do, acts of will or velleities; imaginations of thoughts, intentions, wills or velleities by oneself or some other(s). Thought, then, in its minimal form of inner or outer meaningful speech, is to varying degrees an act of will. In its more complex forms, thought involves further acts of will (e.g. if I mentally project or intend the response someone else might have if I hit him). It also involves affections, being usually if not always driven by some desires and/or aversions, which stimulate not only its start, but also its directions and stop.

5. Universals and Potentiality[118]

Speculation is always permissible and valuable, to show we can muster at least one possible scenario, or two or more alternative scenarios. Every theory should be argued for, as well as against, as much as possible.

Whatever it is that particular existents (appearing in experience)[119] have in common, is referred to as a 'universal.' The term is also applied to any common character of such universals, in turn. A number of theories have been proposed to explain what these

118 These notes were originally written in 1997, but I have made considerable changes in them, to bring them up to date with my current thinking.

119 Discourse in terms of Aristotelian categories has proven very confusing and stale, and we have in time come round to the simple and neutral idea of 'events,' when referring to particular existents. For us, anything noticeable, anything that stands out from its surrounds, is an event. (Even the world as a whole is an event, in that it is distinct from an imagined non-world.) Thus, an event may be static or dynamic, a property or an entity, or even a relation (like owning, doing or causing). In Buddhism, the emphasis is rather on 'relation.' The doctrine of interconnectedness of everything suggests that existents (entities, attributes, actions) are merely the crossroads of an infinity of relations, each devoid of substance but all together adding up to something.

abstract things we call universals might be. Some accounts were transcendental, some substantial, some mental and some verbal. The issue is very important, because we need to justify our conceptualizations, on which all our knowledge is based.

In my view, the problem of universals should be approached mathematically. According to this theory[120], each universal is *immanent* in the particulars manifesting it, but it has no individual existence of its own anywhere else. Only in our minds is the *separation* between particulars and universals made. We have here a harmonious marriage of Idealism and Materialism.

Imagine all existents, all phenomena be they physical or mental or whatever, as consisting of 'vibrations of energy'[121]. These vibrations of energy are differentiated somehow, in any of various ways waves vary, but they also have common aspects with many though rarely all others. To exist is to be a wave.

All waves co-exist in the concrete world. Furthermore, waves are related abstractly by their similarities, i.e. by the wave characteristics they have in common (except for their space and time coordinates, else they would be one and the same). Everything consists of vibrations, *which*

120 Discussed more fully in the chapter on Conceptualization.

121 Those of the hippy generation would say, "vibes!" Of course, these ideas come to me from Indian philosophy, by way of its influence on Western youth of my time.

affect each other over time, so that the waves change and move in a multitude of ways.

The result is a network, intense vibrational activity every which way, in constant flux. We perceive existents as they flash before us, by way of the senses, setting our own bodies, brains and souls in vibration (how precisely, has to be looked into). The world as a whole may be viewed as the additive and therefore common resultant of all particular vibrations. The overall noise or music they make, the orchestral symphony of existence.

The tree of classification of all existents that we constantly build up in our minds, judging and memorizing the interrelations between different concepts, has no objective counterpart, but our 'classes' are indeed to be found in the concrete world, in the way of comparable fractions or aspects or measures of vibrations, or of their motions, or of their interrelations.

A big question for the theory of universals to answer is the existence of *potentiality*[122]. For our universals are not always actual in a given moment of the world as we

122 The other modes of possibility are less of a problem. Thus, logical possibility refers to conceivability (imagination) without internal inconsistency. Extensional possibility implies that cases occur in other specimens of the same class. Whereas natural possibility (potentiality) could be applied to a single individual, that has not previously actually displayed the property in question.

experience it. This issue is not unrelated to that of causality, as we shall see.

The universal is generally thought to remain constant while its manifestations in various points of space-time are the particular variations of it that we experience in our journey through space and time. Where is this 'constancy' expressed? It would seem that without actual particular manifestation, the universal does not actually exist. Does it suffice to say that false universals exist in mind instead of matter? But what of the potentiality of a universal that has not yet had a particular, nor been thought about?

> We should in this context mention attempts to solve the problem of potentiality with reference to a multitude (or an infinity) of universes, like ours or unlike ours. This position is found in Buddhism, and has become interesting to scientists in recent years.
>
> According to this view, the world in its largest sense would include multitudes of universes, which like ours constitute momentary, local explosions of manifest turbulent, plural being in the grand fabric of serene monist existence. Or like molecules of water in the ocean.
>
> Such multiple universes might be connected somehow (Einstein speculated on this issue), or totally unconnected. The 'laws of nature' operative in these universes might be wholly or

> partly the same or different (as Newton speculated).
>
> There might also be universes within universes, related as microcosm and macrocosm. Each quark in our world may be a universe on a smaller scale of space and time, full of black holes, galaxies, stars, planets, living beings, atoms and quarks, with its own Big Bang. Our world may in turn itself be but a quark in a larger universe.
>
> In that case, potentiality (and other modes of possibility) could mean continued existence in another universe of the grand world, while impossibility means nonexistence or cessation of being "in all possible worlds" (a phrase we owe to Liebniz, I think). Whether man can really hope to resolve such issues is questionable. All this is speculation, of course.

A more down to earth answer would be as follows. For a start, the wave-form constituting a 'potential but not actual' universal is a mathematical potential of space-time, *together with all other* 'potential but not actual' universals. That is to say, the potentiality has no specific shape and form stored anywhere specific, but is merely a potentiality inscribed in space-time itself by the very fact of the mathematical possibility of this wave-form and all others in it.

If so, then perhaps everything is potential. Whether the course of the world ever gives rise to all its potentials is then another question. It would at first sight depend only

on whether the previous positions of the world process allow for such outcome, given enough time. But if we consider the facts of causation, we see that the situation is more restrictive still.

Not all conceivable wave-forms occur for the simple reason that there are interactions between existing wave-forms. The few fundamental 'laws of physics' are supposed to summarize the given condition of the material world, and predetermine that certain wave-forms that pure mathematics would allow (if antecedents were ignored) will never in fact be actualized. Similarly, supposedly, in the mental domain.

Our knowledge of these 'laws of nature' is not given us in advance, so it has to be based on gradual accumulation of empirical information. Anything is conceivable, but not everything is potential. In most situations, we only know potentiality from actuality, though in some contexts we can predict it from earlier information.

This is where *causation* is sought out: so and so occurs *when* this or that occurs *and only then*. The potential is thus what occurs *in specific circumstances*. Therefore, the actuality wherein potentiality is 'stored' is in the surrounding circumstances, or their antecedents. Potentialities are inscribed in nature's actualities, and passed on from moment to moment, by virtue of the interactions of all waves in the universe.

6. Social vs. Personal Knowledge

Each person has knowledge (experiences and insights, as well as introspections) that no one else has. Some of this personal knowledge is verbally shared – i.e. transmitted to others. Much of our individual knowledge comes from other people in this way. We absorb a bit from each of many people (family, friends, neighbors, books, teachers, media, etc.); but not, note well, from all people. Thus, social knowledge is diffuse, more a network of partly overlapping limited circles, than a totality we plug into and feed.

The 'collective ownership' of humanity's knowledge is a theoretical 'potential', rather than an actuality. We do not each have all available knowledge - no one has that: we couldn't in fact ever have it, it is just too vast. Thus, the idea is not just a fiction – it is not even possible.

For these reasons, it is not really accurate to speak of science as a common possession, the sum total of all scientific knowledge. Rather, science is a mutual *process* of communication, data-exchange, and peer acknowledgment or criticism – whose result is broader and more precise, though still limited, knowledge within each of the participants in science.

7. THE ACTIVE ROLE OF LOGIC

1. Principles of Adduction[123]

The concepts and processes of adduction are fundamental tools of human cognition, which only started becoming clear in recent centuries thanks to philosophers like Francis Bacon or Karl Popper. Even so, many people are still today not aware of this important branch of logic. Logic is the art and science of discourse. Like all logical principles, those of adduction are firstly idealized descriptions of ordinary thinking, and thereafter prescriptions for scientific thought.

Anything we believe or wonder about or disbelieve may be considered a *theory*. Everything thinkable has some initial credibility at first glance, but we are for this very reason required to further evaluate it, otherwise contradictories would be equally true! ***Adduction*** is the science of such evaluation: it tells us how we do and should add further credibility to a theory or its negation. To adduce evidence is to add logical weight to an idea.

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123 This essay was written back in 1990, soon after I completed *Future Logic*, so that I could not include its clarifications in that book. All the other topics in this chapter were developed later, in 1997.

A theory T is said to ***predict*** something P, if T implies P (but does not imply nonP). A theory T may predict the negation of something, i.e. nonP; we might then say that T ***disclaims*** P; in such case, T implies nonP (but does not imply P). A theory T may not-predict P, or not-predict nonP, which are the same situation by our definition (i.e. where T does not imply P *and* does not imply nonP); we might then say that T is ***neutral*** to P (and to nonP).[124]

A theory T has always got at least one alternative nonT, at least to start with[125]. Normally, we do not have only one theory T and its negation nonT to consider, but many theories T1, T2, T3, etc. If any of these alternatives are compatible, they are improperly formulated. Properly formulated alternatives are not merely distinct but incompatible[126]. Let us henceforth suppose we are dealing with such contraries or contradictories, so that the

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124 A theory that implies *both* P and nonP is inconsistent and therefore false. If that result seems inappropriate, then the claim that T implies P or that T implies nonP or both must be reviewed.

125 This alternative is incompatible with it, i.e. they cannot both be true.

126 For example, 'it is white' and 'it is black' are too vague to be incompatible. We might not realize this immediately, till we remember that some things are both black and white, i.e. partly the one and partly the other. Then we would say more precisely 'it is white and not black' or 'it is wholly black', to facilitate subsequent testing. Of course, our knowledge that some things are both black and white is the product of previous experience; in formulating our theses accordingly, we merely short cut settled issues.

alternatives in the disjunction 'T1 or T2 or T3 or...' are mutually exclusive[127].

Theories depend for their truth on *internal consistency and consistency with all other knowledge, both the theoretical and the empirical*. Here, we are concerned in particular with the estimating the truth, or falsehood, of theories with reference to their predictions or lack of them.

- By ***correct*** (or true) prediction we mean that T predicts P and P indeed occurs, or that T disclaims P and nonP indeed occurs.
- By ***incorrect*** (or false) prediction is meant that T predicts P whereas nonP is found to occur, or that T disclaims P whereas P is found to occur.

Ultimately, occurrences like P or nonP on which we base our judgments have to be mere *phenomena* – things which appear in our experience, simply as they appear[128].

If a theory seems true *at first sight*, it is presumably because its alternative(s) was or were quickly eliminated

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127 The disjunction 'T or nonT' may be viewed as a special case of this. But also, 'T1 or T2 or T3 or...' may always be recast as 'T1 or nonT1', where nonT1 is equivalent to 'T2 or T3 or...'.

128 Such bare events impinge on our mind all the time. A skilful knower is one who has trained himself or herself to distinguish primary phenomena from later constructs involving them. Sometimes such distinction is only possible ex post facto, after discovery of erroneous consequences of past failures in this art.

for some reason – for example, due to inconsistency, or because of obviously untenable predictions. If no alternative was even considered, then the first theory – *and its alternative(s)* – must be subjected to consistency checks and empirical ***tests***. By the latter term we refer to observation (which may be preceded by experiment) of concrete events (and eventually some of their abstract aspects), to settle issues raised by conflicting theories.

It is conceivable that only one theory concerning some issue be at all thinkable; but this situation must not be confused with that of having only succeeded in constructing one theory thus far. For it also happens that we have *no* theory for the issue at hand (at present and perhaps forever), and we do not conclude from this that there is no explanation (we maintain that there is one, in principle). It must likewise be kept in mind that having two or more theories for something does not ensure that we have all the possible explanations. We may later (or never) find some additional alternative(s), which may indeed turn out to be more or the most credible.

Alternative theories may have some predictions in common; indeed they necessarily do (if only in implying existence, consciousness and similar generalities). More significant are the differences between alternative theories: that one predicts what another disclaims, or that one predicts or disclaims what another is neutral to; because it is with reference to such differences, and

empirical tests to resolve issues, that we can confirm, undermine, select, reject or establish theories.[129]

If a theory correctly predicts something, which at least one alternative theory was neutral to, then the first theory is somewhat ***confirmed***, i.e. it effectively gains some probability of being true (lost by some less successful alternative theory). If a theory is neutral to something that an alternative theory correctly predicted, then the first theory is somewhat ***undermined***, i.e. it effectively loses some probability of being true (gained by a more successful alternative theory). If all alternative theories equally predict an event or all are equally neutral to it, then each of the theories may be said to be ***unaffected*** by the occurrence.

Thus, confirmation is more than correct prediction and undermining more than neutrality. By our definitions, these terms are only applicable when alternative theories behave differently, i.e. when at least one makes a correct prediction and at least one is neutral to the occurrence concerned. If all alternatives behave uniformly in that respect, they are unaffected by the occurrence, i.e. their

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129 A prediction is only significant, useful to deciding between theories, if it is, as well as consistent, testable empirically; otherwise, it is just hot air, mere assertion, a cover or embellishment for speculations. The process of testing cannot rest content at some convenient stage, but must perpetually put ideas in question, to ensure ever greater credibility.

probability ratings are unchanged. Thus, confirmation (strengthening) and undermining (weakening) are relative, depending on comparisons and contrasts between theories.[130]

Furthermore, we may refer to degrees of ***probability***, (a) according to which and how many theories are confirmed or undermined with regard to a given occurrence, and (b) according to the number of occurrences that affect our set of theories. If we count one 'point' per such occurrence, then (a) in each event the theory or theories confirmed share the point, i.e. participate in the increased probability, while that or those undermined get nothing; and (b) over many instances, we sum the shares obtained by each of the theories and thus determine their comparative weights (thus far in the research process). The theory with the most accumulated such points is the most probable, and therefore the one to be ***selected***.[131]

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130 Note that correct prediction by a theory does not imply proof of the theory (since 'T predicts P' does not imply 'nonT predicts nonP'), nor even exclude correct prediction by the contradictory theory (since 'nonT predicts P' is compatible). It 'confirms' the theory only if the contradictory theory may be 'undermined' (i.e. if 'nonT is neutral to P'), otherwise both the theory and its contradictory are unaffected.

131 The domain of probability rating may be further complicated by reference to different degrees of implication, instead of just to strict implication. T may 'probably imply' P, for instance, and this formal possibility gives rise to further nuances in the computation of probabilities of theories.

Note that it may happen that two alternative theories T and nonT, or a set of theories T1, T2, T3... are in equilibrium, because each theory is variously confirmed by some events and undermined by others, and at the end their accumulated points happen to be equal. This is a commonplace impasse, especially because in practice we rarely do or even can accurately assign and compute probability ratings as above suggested in the way of an ideal model. We end up often relying on ***'judgment calls'***, which people make with varying success. But of course, such decisions are only required when we have to take immediate action; if we are under no pressure, we do not have to make a stand one way or the other.

If any prediction of a theory is incorrect, then the theory is ***rejected***, i.e. to be abandoned and hopefully replaced, by another theory or a modified version of the same (which is, strictly speaking, another theory), as successful in its predictions as the previous yet without the same fault. The expression 'trial and error' refers to this process. Rejection is effective disproof, or as near to it as we can get empirically. It follows that if T incorrectly predicts P, then nonT is effectively proved[132].

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132 Note that if both T and nonT predict P, then P is bound to occur; i.e. if the implications are logically incontrovertible, then P is necessary. If we nonetheless find nonP to occur and thus our predictions false, we are faced with a paradox. To resolve it, we must verify our observation of nonP and our implications of P by both T and nonT. Inevitably, either the

So long as a theory seemingly makes no incorrect predictions, it is ***tolerated*** by the empirical evidence as a whole. A tolerated theory is simply not-rejected thus far, and would therefore be variously confirmed, undermined, unaffected.

A theory is finally ***established*** only if it was the only theory with a true prediction while all alternative theories made the very opposite prediction. In short, the established theory had an *exclusive* implication of the events concerned. Clearly, if nonT is rejected, then T is our only remaining choice; similarly, it all alternatives T2, T3... are rejected, then the leftover T1 is established[133]. We may then talk of inductive proof or vindication. Such proof remains convincing only insofar as we presume that our list of alternative theories is complete and their respective relations to their predictions correct, as well as that the test was indeed fully empirical and did not conceal certain untested theoretical assumptions. Proof is deductive only if the theory's contradictory is self-contradictory, i.e. if the theory is self-evident.

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observation or one or both implications (or the assumptions that led us to them) will be found erroneous, by the law of non-contradiction.

133 At least temporarily; we may later find reason to eliminate T1, which would mean that our list of theories was not complete and a further alternative Tn must be formulated.

Once a theory is selected on the basis of probabilities or established because it is the last to withstand all tests, it retains this favored status until, if ever, the situation changes, i.e. as new evidence appears or is found, or new predictions are made, or new theories are constructed.

It is important to note that, since new theories may enter the discussion late in the day, events which thus far had no effect on the relative probabilities of alternative theories or on a lone standing theory, may with the arrival on the scene of the additional player(s), become significant data. For that reason, in the case of selection, even though correct predictions or neutralities may previously have not resulted in further confirmations or undermining, they may suddenly be of revived interest[134]. Likewise, in the case of establishment, we have to continue keeping track of the theory's correct predictions or neutralities, for they may affect our judgments at a later stage.

Certain apparent deviations from the above principles must be mentioned and clarified:

- Note that well-established (consistent and comparatively often-confirmed) large theories are sometimes treated as 'proofs' for narrower hypotheses. They are thus regarded as equivalent to empirical evidence in their force. This gives the

134 Thus correct prediction, though not identical with confirmation, is 'potential' confirmation, etc.

appearance that 'reason' is on a par with experience with respect to evidence – but it is a false impression.

More specifically: say that (a) I guessed or 'intuited' the measure of so and so to be x, and (b) I calculated same to be x. Both (a) and (b) are 'theories', which can in fact be wrong, yet (a) being an *isolated* theory (or offhand guess) is considered confirmed or rejected by (b), because the latter being *broader in scope* (e.g. a mathematics theorem) would require much more and more complex work to be put in doubt.

The more complicated the consequences of rejecting an established hypothesis, the more careful we are about doing such a thing, preferring to put the pressure on weaker elements of our knowledge first.

- Note also here the following epistemological fallacy: we often project an image, and then use this *imagined event as an empirical datum*, in support of larger hypotheses. In other words, speculations are layered: some are accepted as primary, and then used to 'justify' more removed, secondary speculations. By being so used repeatedly, the primary speculations are gradually given an appearance of solidity they do not deserve.

  The term 'fact' is often misused or misunderstood. We must distinguish between theory-generated, relative fact and theory-supporting, absolute fact.

  a) 'Facts' may be implied by one's theory, in the sense of being predicted with the expectation that

they will be found true, in which event the theory concerned would be buttressed. Such 'facts' are not yet established, or still have a low probability rating. We may call that ***supposed fact***. It is properly speaking an item within one's theory, one claimed to be distinguished by being empirically testable, one that at first glance is no less tentative than the theory that implied it.

b) In contrast, ***established fact*** refers to propositions that are already a source of credibility for the theory in question, being independently established. The logical relation of implication (theory to fact) is the same, but the role played by the alleged fact is different. Here, a relatively empirical/tested proposition actually adds credibility to a proposed theory.

2. Generalization is Justifiable

The law of generalization is a special case of adductive logic, one much misunderstood and maligned.

In *generalization*, we pass from a particular proposition (such as: *some* X are Y) to a general one (*all* X are Y). The terms involved in such case are already accepted, either because we have observed some instances (i.e. things that are X and things that are Y) or because in some preceding inferences or hypotheses these terms became part of our context. These terms already overlap to at least a partial extent, again either thanks to an observation (that some things are *both* X and Y) or by other means. The generalization proper only concerns the last lap, viz. on the basis that some X are Y, accepting that *all* X are Y. There is no deductive certainty in this process; but it is inductively legitimate.

The general proposition is strictly speaking merely a hypothesis, like any other. It is not forever fixed; we can change our minds and, on the basis of new data (observed or inferred), come to the alternate conclusion that 'some X are not Y' – this would simply be *particularization*. Like any hypothesis, a generalization is subject to the checks and balances provided by the principles of adduction. The only thing that distinguishes

this special case from others is that it deals with already granted terms in an already granted particular proposition, whereas adduction more broadly can be used to invent new terms, or to invent particular as well as general propositions. To criticize generalization by giving the impression that it is prejudicial and inflexible is to misrepresent it. We may generalize, provided we remain open-minded enough to particularize should our enlarged database require such correction.

Some criticize generalization because it allows us to make statements about *unobserved* instances. To understand the legitimacy of generalization, one should see that in moving from 'some X are Y' to 'all X are Y' one remains within the *same polarity* of relation (i.e. 'are,' in this case); whereas if one made the opposite assumption, viz. that some of the remaining, unobserved instances of X are *not* (or might not be) Y, one would be introducing a much newer, less justified relation. So far we have only encountered Xs that *are* Y, what justification do we have in supposing that there might be Xs that *are not* Y? The latter is more presumptive than assuming a continued uniformity of behavior.

> Note this argument well. When we generalize from some to all X are Y, we *only* change the quantity involved. Whereas if, given that some X are Y, we supposed that some other X are also Y and some are not Y, we change *both* the quantity and the polarity, for we are not only speculating about the existence of X's that are *not* Y, but also

> saying something about *all* X (those known to be Y, those speculated to also be Y and those speculated to be not Y). Thus, the preference on principle of particularization to generalization would be a more speculative posture.

Whence, generalization is to be recommended – until and unless we find reason to particularize. Of course, the degree of certainty of such process is proportional to how diligently we have searched for exceptions and not found any.

To those who might retort that an agnostic or problematic position about the unobserved cases would be preferable, we may reply as follows. To say that, is a suggestion that "man is unable to know generalities." But such a statement would be self-contradictory, since it is itself a claim to generality. How do these critics claim to have acquired knowledge of this very generality? Do they claim special privileges or powers for themselves? It logically follows that they implicitly admit that man (or some humans, themselves at least) can know some generalities, if only this one (that 'man can know some generalities'). Only this position is self-consistent, note well! If we admit some generality possible (in this case, generality known by the logic of paradoxes), then we can more readily in principle admit more of it (namely, by generalization), provided high standards of logic are maintained.

Moreover, if we admit that *quantitative* generalization is justifiable, we must admit in principle that *modal*

generalization is so too, because they are exactly the same process used in slightly different contexts. Quantitative generalization is what we have just seen, the move from 'some X are Y' to 'all X are Y,' i.e. from some instances of the subject X (having the predicate Y) to all instances of it. Modal generalization is the move from '(some or all) X are in *some* circumstances Y' to '(some or all) X are in *all* circumstances Y,' i.e. from some circumstances in which the XY conjunction appears (potentiality) to all eventual surrounding circumstances (natural necessity). It is no different a process, save that the focus of attention is the frequency of circumstances instead of instances. We cannot argue against natural necessity, as David Hume tried, without arguing against generality. Such a skeptical position is in either case self-defeating, being itself a claim to general and necessary knowledge!

> Note that the *arguments* proposed above in favor of the law of generalization are consistent with that law, but not to be viewed as an application of it. They are logical insights, proceeding from the forms taken by human thought. That is to say, while we induce the fact that conceptual knowledge consists of propositional forms with various characteristics (subject, copula, predicate; polarity, quantity, modality; categorical, conditional), the analysis of the implications on reasoning of such forms is a more deductive logical act.

Thus, generalization in all its forms, properly conceived and practiced, i.e. including particularization where appropriate, is fully justified as an inductive tool. It is one instrument in the arsenal of human cognition, a very widely used and essential one. Its validity in principle is undeniable, as our above arguments show.

3. Logical Attitudes

Logic is usually presented for study as a static description and prescription of forms of proposition and arguments, so that we forget that it is essentially an *activity*, a psychic act. Even the three Laws of Thought have to be looked at in this perspective, to be fully understood. To each one of them, there corresponds a certain mental attitude, policy or process…

a) To the Law of Identity, corresponds the attitude of **acknowledgement of fact**, i.e. of whatever happens to be fact in the given context. Here, the term 'fact' is meant broadly to include the fact of appearance, the fact of reality or illusion, or even the fact of ignorance or uncertainty. Also, the attention to eventual conflicts (contradictions, incompatibilities, paradoxes, tensions) and gaps (questions, mysteries); and by extension, other forms of oppositional relations.

b) To the Law of Non-contradiction, corresponds the policy of **rejection of contradictions**. Contradictions occur in our knowledge through errors of processing of some kind (e.g. over-generalization, uncontrolled adduction, unsuccessful guessing), which is ultimately due to the gradual presentation of

information to the human observer and to his limited, inductive cognitive means. The Law is an insight that such occurrence, once clearly realized, is to be regarded not as a confirmation that contradiction can occur in reality, but as a signal that a mere illusion is taking place that must be rejected.

c) To the Law of the Excluded Middle, corresponds the process of **searching for gaps or conflicts in knowledge and pursuing their resolution**. This is the most dynamic cognitive activity, an important engine in the development of knowledge. And when a contradiction or even an uncertainty arises, it is this impulse of the human thinking apparatus that acts to ask and answer the implicit questions, so as to maintain a healthy harmony in one's knowledge.

Thus, the exercise of logic depends very much on the ***human will***, to adopt an attitude of factualism and resolve to check for consistency, look for further information and issues, and correct any errors found. The psychological result of such positive practices, coupled with opportunity and creativity, is increasing knowledge and clarity. The contraries of the above are avoidance or evasion of fact, acceptance of contradictions, and stupidity and laziness. The overall result of such illogical practices is ignorance and confusion.

Whereas 'consciousness' refers to the essentially static manifestation of a Subject-Object relation, 'thought' is an activity with an aim (knowledge and decision-making). The responsibility of the thinker for his thought

processes exists not only at the fundamental level of the three Laws, but at every level of detail, in every cognitive act. Reasoning is never mechanical. To see what goes on around us, we must turn our heads and focus our eyes. To form a concept or formulate a proposition or construct an argument or make an experiment or test a hypothesis, we have to make an effort. The more attentive and careful our cognitive efforts, the more successful they are likely to be.

4. Syllogism Adds to Knowledge

People generally associate logic with deduction, due perhaps to the historic weight of Aristotelian logic. But closer scrutiny shows that human discourse is largely inductive, with deduction as but one tool among others in the toolbox, albeit an essential one. This is evident even in the case of Aristotelian syllogism.

A classic criticism of syllogistic logic (by J. S. Mill and others) is that it is essentially circular argument, which adds nothing to knowledge, since (in the first figure) the conclusion is already presumed in the major premise. For example:

All men are mortal	(major premise)
Caius is a man	(minor premise)
therefore, Caius is mortal	(conclusion)

But this criticism paints a misleading picture of the role of the argument, due to the erroneous belief that universal propositions are based on "complete

enumeration" of cases[135]. Let us consider each of the three propositions in it.

Now, our major premise, being a universal proposition, may be either:

(a) axiomatic, in the sense of self-evident proposition (one whose contradictory is self-contradictory, i.e. paradoxical), or

(b) inductive, in the way of a generalization from particular observations or a hypothesis selected by adduction, or

(c) deductive, in the sense of inferred by eduction or syllogism from one of the preceding.

If our major premise is (a), it is obviously not inferred from the minor premise or the conclusion. If (b), it is at best probable, and that probability could only be incrementally improved by the minor premise or conclusion. And if it is (c), its reliability depends on the probability of the premises in the preceding argument, which will reclassify it as (a) or (b).

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135 In a way Aristotle brought this criticism upon himself, since he first apparently suggested that universal propositions are based on complete enumeration. But of course, in practice we almost never (except in very artificial situations where we ourselves conventionally define a group as complete) encounter completely enumerable groups. Our concepts are normally open-ended, with a potentially "infinite" population that we can never even in theory hope to come across (since some of it may be in the past or future, or in some other solar system or galaxy)!

Our minor premise, being a singular (or particular) proposition, may be either:

(a) purely empirical, in the sense of evident by mere observation (such propositions have to underlie knowledge), or

(b) inductive, i.e. involving not only observations but a more or less conscious complex of judgments that include some generalization and adduction, or

(c) deductive, being inferred by eduction or syllogism from one of the preceding.

If our minor premise is (a), it is obviously not inferred from any other proposition. If (b), it is at best probable, and that probability could only be incrementally improved by the conclusion. And if it is (c), its reliability depends on the probability of the premises in the preceding argument, which will reclassify it as (a) or (b).

It follows from this analysis that the putative conclusion was derived from the premises and was not used in constructing them. In case (a), the conclusion is as certain as the premises. In case (b), the putative conclusion may be viewed as a **prediction** derived from the inductions involved in the premises. The conclusion is in neither case the basis of either premise, contrary to the said critics. The premises were known temporally before the conclusion was known.

The deductive aspect of the argument is that granting the premises, the conclusion would follow. But the inductive aspect is that the conclusion is no more probable than the premises. Since the premises are inductive, the

conclusion is so too, even though their relationship is deductive. The purpose of the argument is not to repeat information in the premises, but to verify that the premises are not too broad. The conclusion will be tested empirically; if it is confirmed, it will strengthen the premises, broaden their empirical basis; if it is rejected, it will cause rejection of one or both premise(s).

> In our example, *conveniently, Caius couldn't be proved to be mortal, although apparently human, till he was dead. While he was alive, therefore, the generalization in the major premise couldn't be based on Caius' mortality. Rather, we could assume Caius mortal (with some probability – a high one in this instance) due to the credibility of the premises. When, finally, Caius died and was seen to die, he joined the ranks of people adductively confirming the major premise. He passed from the status of reasoned case to that of empirical case.*

Thus, the said modern criticism of syllogism (and by extension, other forms of "deductive" argument) is not justified. Syllogism is a deductive procedure all right, but it is usually used in the service of inductive activities. Without our ability to establish deductive relations between propositions, our inductive capabilities would be much reduced. All pursuit of knowledge is induction; deduction is one link in the chain of the inductive process.

It should be noted that in addition to the above-mentioned processes involved in syllogism, we have to take into account yet deeper processes that are tacitly assumed in such argumentation. For instance, terms imply classification, which implies comparison, which mostly includes a problematic reliance on memory (insofar as past and present cases are compared), as well as perceptual and conceptual powers, and which ontologically raises the issue of universals. Or again, prediction often refers to future cases, and this raises philosophical questions, like the nature of time.

The approach adopted above may be categorized as more epistemological than purely logical. It was not sufficiently stressed in my *Future Logic*.

5. There is a Formal Logic of Change

In an article in the December 1997 issue of Network[136], "Goethe's Organic Vision", Bortoft[137] exposes the limitation of modern scientific thinking to static relations, and how it could have been avoided had we paid more attention to Goethe's[138] more dynamic way of looking at things.

Bortoft argues, in effect, that when science adopted its mathematical approach to the description of nature, as of the 18th Century under Neoplatonistic influences, in its enthusiasm it missed out on a valuable epistemological opportunity which Goethe had presented it.

The latter, in his *The Metamorphosis of Plants*, considers that "it may be possible out of one form to develop all plant forms". Bortoft explains that this was not meant to be interpreted, as it has been by many, as a search for the commonalties of plant organs (and plants) – but rather, as

136 My present comments were written in 1998.

137 Author of The Wholeness of Nature; Goethe's Way of Science (Floris Press, 1996).

138 Johannn Wolfgang von Goethe (Germany, 1749-1832).

Rudolph Steiner[139] had done, as an attempt to capture a supposed biological transformation of some original unitary organ (or plant) into a multiplicity of organs (or plants).

That is, Goethe was not referring to Platonic universals concerning a 'finished product', but to a living process. He was looking for the multiplicity 'emerging from an original unity', rather than for an 'unity underlying multiplicity'.

I want to here let it be known that *the linguistic/logical tools needed to implement Goethe's programme already exist*. Propositional forms through which to verbally express change (including metamorphosis), and the deductive logic (oppositions, syllogism, etc.) concerning such forms, have already been worked out in considerable detail in my work *Future Logic*[140].

Aristotle had, in his treatises on logic, crystallized and surpassed the work of his predecessors, and in particular that of his teacher Plato, by formalizing the language of classification and the reasoning processes attending it.

The common characters (including behaviors[141]) of things were expressed as predicates of subjects, in categorical propositions of the form "X is Y" (where X, Y... stood for universals). The relation expressed by the copula 'is'

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139 In Goethe's World View (1897).

140 See especially chapter 17.

141 That is, an action or activity can be counted as a quality in this context; e.g. footballers.

was clarified in the various deductive processes, and in particular by syllogism such as "if X is Y and Y is Z, then X is Z". This is all well known, no need for more detail.

While Aristotle limited his formal treatment to such static relations, essentially the relations between particulars, species and genera, he did in his other works investigate **change** informally in great detail. He was bound to do so, in view of the interest the issues surrounding it had aroused in Greek philosophy since its beginnings. His approach to change was, by the way, distinguished by his special interest in biology.

What concerns us here is the distinction between **being and becoming**, which Aristotle so ably discussed.

In "X is Y", a thing which is X is also Y – it has both characters at once, in a static relation expressed by the copula of being (is). In contrast, in "X becomes Y", the particular in question is at first X and at last Y, *but not both at once*; it ceases being X and comes to be Y, it undergoes change – the copula of becoming expresses a dynamic relation.

The latter copula can easily be subjected to the same kind of logical analysis as was done for the simpler case. The formal treatment in question may be found, as I said, in my above-mentioned work[142]. What I want to stress here

142 There I also deal with other forms of change. 'Becoming' refers to *mutation* (or metamorphosis or radical

is the significance of the introduction of propositions concerning change into formal logic.

Our philosophical view of classification has been distorted simply because Aristotle stopped his logical investigations where he did. Perhaps given more time he would have pursued his research and extended our vision beyond the statics of classification into its dynamics.

For, finally, it is very obvious that ***things do not just fall under classes once and forever, but they also pass over from one class to another***.

And this is true not just in biology, but in all fields. The baby I was once became an older man. The water used in the hydrolytic process became hydrogen and oxygen. Logicians have no need to invent a special language, and there is nothing artificial in considering changes in subsumption. We all, laymen and scientists, speak the language already and reason with it all the time.

No change of paradigm is called for, no metaphysical complexities, note well. The only problem is that philosophers have lagged behind in their awareness of the phenomenon. Nothing said here invalidates the static approach; we merely have to enrich it with awareness of the dynamic side.

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change), but we must also consider *alteration* (or superficial change), for which I use the expression 'getting to be' as copula, note. (I saw the elucidation of this language and area of logic as essential to discourse in evolutionary theory, for instance.)

Let me add, in conclusion, that Bortoft's article has made me realize that the subject term (X) of "X becomes Y" may be seen as a *sort of* 'genus' in relation to the predicate term (Y)[143]. For, in addition to reawakening us to the dynamic aspects of our world, Goethe is pointing out[144] that the root form, the common historical source of present forms, has a unifying effect, distinct from that of mere similarities in present characteristics.

Upon reflection we see that here it is not "X" per se which is a genus, but the derivative term "*came out of* X" which is obviously different in its logical properties. After an X becomes a Y, we can classify that Y under the heading of things that came out of an X (though not under things X). The closer study of this more complex predicate, involving *both tense and course of change*, would constitute an enlargement of class logic.

For evidently, a broad consideration of class logic has to recognize a distinct existence and identity to terms which are not only present and attributive (is X), but past (was X) or future (will be X) in the mutative (came out of X, will come out of X) or alterative (got to be out of X, will get to be out of X) senses. For each of these terms is

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143 Note well this reverses the roles in "X is Y", where Y is usually seen as a genus of X (if all X are Y, to be more precise).

144 It is irrelevant how far today's biologists agree with Goethe's specific thesis; we are merely concerned with the philosophical aspects here.

legitimate (and oft-used in practice) and sure to have its own behavior patterns[145].

The scope of class logic studies has so far been limited so as to simplify the problem; but once the simpler cases are dealt with, we are obliged to dig deeper and try and give an account of all forms of human reasoning.

145 Certainly, a member of "now X" is not necessarily a member of "previously X" or of "subsequently X", all the more so if we consider the different kinds of change which may underlie the qualifications 'previously' or 'subsequently'. Such study ought, perhaps, start by considering the converse issue -- the logical properties of the tenses of mutation (became, will become Y) and alteration (got to be, will get to be Y).

6. Concept Formation

Many philosophers give the impression that a concept is formed simply by pronouncing a clear definition and then considering what referents it applies to. This belief gives rise to misleading doctrines, like Kant's idea that definitions are arbitrary and tautologous. For this reason, it is important to understand more fully how concepts arise in practice[146]. There are in fact two ways concepts are formed:

a) **Deductive concepts**. Some concepts indeed start with reference to a selected attribute found to occur in some things (or invented, by mental conjunction of separately experienced attributes). The attribute defines the concept once and for all, after which we look around and verify what things it applies to (if any, in the case of inventions) and what things lack it. Such concepts might be labeled 'deductive', in that their definition is fixed. Of course, insofar as such

146 See also my *Future Logic*, chapter 4.4, and other comments on this topic scattered in my works. The present comments were written in 2002, so as to clarify the next section, about empty classes. The ultimate null class is, of course, 'non-existence'!

concepts depend on experiential input (observation of an attribute, or of the attributes imagined conjoined), they are not purely deductive.

Note in passing the distinction between deductive concepts based on some *observed* attribute(s), and those based on an *imagined* conjunction of observed attributes. The former necessarily have some real referents, whereas the latter may or not have referents. The imagined definition may turn out by observation or experiment to have been a good prediction; or nothing may ever be found that matches what it projects. Such fictions may of course have from the start been intended for fun, without expectation of concretization; but sometimes we do seriously look for corresponding entities (e.g. an elementary particle).

b) **Inductive concepts**. But there are other sorts of concepts, which develop more gradually and by insight. We observe a group of things that *seem* to have *something* in common, we know not immediately quite *what*. We first label the group of things with a distinct name, thus *conventionally* binding them together for further consideration. This name has certain referents, more or less recognizable by insight, but not yet a definition! Secondly, we look for the common attribute(s) that may be used as definition, so as to bind the referents together in our minds in a *factual* (not conventional, but natural) way. The latter is a trial and error, inductive process.

> We begin it by more closely observing the specimens under consideration, in a bid to discern some of their attributes. One of these attributes, or a set of them, may then stand out as common to all the specimens, and be proposed as the group's definition. Later, this assumption may be found false, when a previously unnoticed specimen is taken into consideration, which intuitively fits into the group, but does not have the attribute(s) required to fit into the postulated definition. This may go on and on for quite a while, until we manage to pinpoint the precise attribute or cluster of attributes that can fulfill the role of definition.

I would say that the majority of concepts are inductive, rather that deductive. That is, they do not begin with a clear and fixed definition, but start with a vague notion and gradually tend towards a clearer concept. It is important for philosophers and logicians to remember this fact.

7. Empty Classes

The concept of empty or null classes is very much a logical positivist construct. According to that school, you but have to 'define' a class, and you can leave to later determination the issue as to whether it has referents or is 'null'. The conceptual vector is divorced from the empirical vector.

What happens in practice is that an imaginary entity (or a complex of experience, logical insight and imagination) is classified without due notice of its imaginary aspect(s). A budding concept is prematurely packaged, one could say, or inadequately labeled. Had we paid a little more attention or made a few extra efforts of verification, we would have quickly noted the inadequacies or difficulties in the concept. We would not have 'defined' the concept so easily and clumsily in the first place, and thus not found it to be a 'null class'.

One ought not, or as little as possible, build up one's knowledge by the postulation of fanciful classes, to be later found 'empty' of referents. One should rather seek to examine one's concepts carefully from the start. Though of course in practice the task is rather to reexamine seemingly cut-and-dried concepts.

I am not saying that we do not have null classes in our cognitive processes. Quite the contrary, we have throughout history produced classes of imaginary entities later recognized as non-existent. Take 'Pegasus' – I presume some of the people who imagined this entity believed it existed or perhaps children do for a while. They had an image of a horse with wings, but eventually found it to be a myth.

However, as a myth, it survives, as a receptacle for thousands of symbolizations or playful associations, which perhaps have a function in the life of the mind. It is thus very difficult to call 'Pegasus' a null-class. Strictly speaking, it is, since there were never 'flying horses'. But in another sense, as the recipient of every time the word Pegasus is used, or the image of a flying horse is mentally referred to, it is not an empty class. It is full of incidental 'entities', which are not flying horses but have to do with the names or images of the flying horse – events of consciousness which are rather grouped by a common symbol.

Mythical concepts in this sense are discussed by Michel Foucault in his *Order of Things*.

We can further buttress the non-emptiness of imaginary concepts by reminding ourselves that today's imaginations may tomorrow turn out to have been realistic. Or getting more philosophical we can still today imagine a scenario for ourselves, consistent with all experience and logical checks, in which 'Pegasus' has a

place as a 'real' entity, or a concept with real referents. Perhaps one day, as a result of genetic manipulations.

> Another example interesting to note is that of a born-blind person, who supposedly lacks even imaginary experience of sights, talking of shape or color. Such words are, for that person, purely null-classes, since not based on any idea, inner any more than outer, as to what they are intended to refer to, but on mere hearsay and mimicry. Here again, some surgical operation might conceivably give that person sight, at which time the words would acquire meaning.

But of course, there are many concepts in our minds, at all times, which are bound to be out of phase with the world around since we are cognitively limited anyway. It follows that the distinction here suggested, between direct reference and indirect (symbolic – verbal or pictorial) reference, must be viewed as having gradations, with seemingly direct or seemingly indirect in-betweens.

Furthermore, we can give the cognitive advice that one should avoid conceptualization practices that unnecessarily multiply null-classes (a sort of corollary of Ockham's Razor). Before 'defining' some new class, do a little research and reflection, it is a more efficient approach in the long run.

One should also endeavor to distinguish between **'realistic' concepts** and **'imaginary' concepts**, whenever possible, so that though the latter be null

classes strictly speaking, their mentally subsisting elements, the indirect references, may be registered in a fitting manner. Of course, realistic concepts may later be found imaginary and vice-versa; we must remain supple in such categorizations.

Imaginary concepts are distinguished as complexes involving not only perception and conception, but also *creativity*. The precise role of the latter faculty must be kept in mind. We must estimate the varying part played by projection in each concept over time. This, of course, is nothing new to logic, but a restatement for this particular context of something well known in general.

8. Context[147]

We may here refer to as a 'text' any word, phrase, sentence or collection of sentences, or indeed any meaningful symbol (such as a traffic sign or a Chinese character[148]). A text may be explicit in thought, speech or writing; or it may be implicit, yet to be made explicit. When two or more texts come together in a body of knowledge, or in a selected framework under consideration, they form a combined text, and each text is said to be taken 'in the context of' the other text(s) present or under consideration. Note also: If a text logically implies some other text or parts of a text, the latter text or parts is/are called a 'subtext' of the former.

Each text taken alone carries with it a certain range of meaning or semantic charge, which is all the possible intentions or interpretations inherent in it, with reference to all possible contexts. This is of course a theoretical notion, since we are never omniscient: it is an open-ended concept; as our knowledge develops, more and

147 See also *Future Logic*, chapter 22.

148 In contrast to the letters of an alphabet, which are intended as semantically empty.

more of these possible meanings come to light. Nonetheless, we can represent this eventual totality as a circle for the sake of argument. Thus, contextuality can to some extent be illustrated as the *intersection* between two (or more) such circles of meaning, as in **Figure 5**.

Obviously, the texts must be compatible, to give rise to a combined text[149]. As this diagram makes clear, the intersection of texts may not give rise to just one joint meaning (a point); it may well give rise to a range of meanings (an area, though one smaller than the original areas). The meaning(s) that they share is/are their compatibility, and the areas outside their intersection are their distinctions and incompatibilities. Note that some, perhaps most, of the "meanings" under consideration are bound to be experiential (actual or at least potential experiences): they are far from entirely conceptual.

But, the essence of contextuality is *the mutual impact* that combined texts have on each other. When two texts intertwine, if the meaning of neither of them is apparently affected by the presence of the other text, they cannot be regarded as constituting a context for each

149 When two texts are incompatible, and it is not clear which of the two is to be abandoned, they remain in knowledge "temporarily" as an unsolved problem (i.e. both become problematic to a greater degree than previously). When one text is preferred to the other, for whatever reasons, clearly the negation of the latter becomes a context for the former, as do the reasons for the preference.

other. ***Contextuality is joint causation by the combination of texts of some new, or more specific, meaning.*** The combined text has a semantic charge somewhat different from the separate texts that constitute it. Either some "new" meaning is caused to appear for us by such fusion (i.e. though it was in the theoretical semantic charge, we were not yet made aware of it in actuality); or though the meaning was foreseen as potential, the fusion of texts has narrowed down the scope of possibilities and so brought that meaning to the fore or into sharper focus.

> A one-word text has a broad range of potential meanings (all its eventual denotations and connotations, now known or not yet known). When you combine it with other words, in a phrase or sentence, you inevitably fine-tune its range of meanings, since only its occurrences in such conjunction are henceforth under consideration. But if you had not till now been aware that this word was combinable with those others, the moment of discovery was an enrichment of meaning for that word, as far as you are concerned. The fine-tuning aspect may be viewed as "deductive"; the enriching aspect may be viewed as "inductive".

In this way, bringing texts together in thought or common discourse serves to naturally enlighten us as to their meanings, to increase our understanding or the precision of our insights. This is no mystical event, but is

a natural consequence of logic, an operation of the reasoning faculty. And by logic, here, understand inductive as well as deductive logic. After all, what is the whole thrust of this science – its analysis of the forms (categorical, conditional, etc.) and processes (oppositions, eductions, syllogisms, adductions) – but to evaluate once and for all the effect of terms and propositions on each other.

> A formal example is syllogism. The premises are two texts, say "X is Y" and "Y is Z", and the conclusion "X is Z" is the context, i.e. the common ground (or part of it) of meaning in them. Each text in isolation includes this proposition (X is Z) and possibly its opposite. But when the two are brought together, this meaning (X is Z) in them is selected.

Of course, some mystery remains. We may well wonder at the ultimate universality of logical insight. Contrary to the beliefs of certain naïve logicians, it is not by means of conventions that reason keeps us in sane contact with experience. It is rather a sort of orderliness, by careful attention to the laws of thought. It is an ethical choice and habit, not a compulsion. Many people fail in this duty of sanity much of the time, and most people do so some of the time (hurting themselves and others).

9. Communication

Logic and language are used primarily for individual thought, and only thereafter for communication between individuals and in groups. Some logicians and linguists seem to forget that, and stress their social aspect, considering the facts of biological evolution. There is no denying that the physiological organs that make human speech possible had to evolve before language could occur. It is also doubtless that the existence of social groups with common experiences and survival goals greatly stimulated the development of verbal discourse. Nevertheless, it is logically unthinkable that any social communication occur without there being first an equivalent movement of thought within the individual mind.

Moreover (as I explain earlier, in chapter 3.2), before verbal thought or dialogue there has to be intention. Words are phenomenal, first occurring in the way of sounds and images in the mind, whether they are taught by society or personally invented. Preverbal thought is intuitive: it is the self-knowledge of what experiences or abstractions we personally intend to refer to or understand by the words used or encountered. Before a logical insight is put into words, it occurs silently and

invisibly, as something introspectively evident. To grasp the meanings we attach to words, we range far and wide in our present and past experiences and reasoning. All the factors thus scanned, which effectively contribute to the meaning of a text, are its 'context' for the individual concerned.

With regard to communication between people (or even with animals), additional factors must be taken into consideration. First, we have to note the empirical facts that, to all appearance, communication is sometimes successful and sometimes not. Both these facts are significant.

Secondly, successful communication may seemingly be nonverbal as well as verbal. Some nonverbal discourse occurs in the way of facial expressions, bodily gestures, tonalities of voice, etc. – this is still phenomenal, indeed material, communication, which largely relies on the common behavior patterns of individuals, and in particular the similarity of their emotional reactions. If I shout angrily or wail despairingly, you recognize the sounds as similar to those you emit when you have these emotions, and you assume I am having the same emotions (or occasionally, pretending to have them).

> There may also exist nonverbal communication based on telepathy, i.e. apparently on a non-material vehicle, though possibly through some material field (e.g. electromagnetic waves). Thoughts might alternatively be transported in some shared mental domain; or telepathy might

even be non-phenomenal, based on possibility of intuition into other people's souls as well as our own. I tend to believe in telepathy (however its means), but readily admit that such a conjecture is not currently scientifically detected and justified. It is mentioned here in passing.

With regard to verbal communication between two (or more) players, the following is worth mentioning. It may be oral (speech) or visual (writing, alphabetical or using other symbols). In the case of speech, the emitter is a speaker and the receiver is an auditor. In the case of writing, we have a writer and a reader. There are different (variously related) languages, and even the same language is not necessarily fully shared. Obviously, both the players must have (part of) a language in common for verbal communication to at all occur.

Inevitably, two people who share the same text do not have exactly the same context for it. They may have both had a certain experience, but their perspectives and memories of it are likely to differ. They may both know and use a word or concept, but it means somewhat different things to them. They may agree on certain beliefs or principles, but understand them variously. For example, the word "logic" means different things to two logicians, and all the more so to a logician and a layperson. Or again, a scientist's idea of "intellectual honesty" and that of a journalist are very different.

This brings us, thirdly, to the complexities of communication: the difficulty of transmitting what one

intends to mean and that of interpreting what was meant. The one making a statement (call him or her A) may wish to reveal something and/or to conceal something; the intent may be sincere and transparent, or manipulative and distortive. The one interpreting the statement (call him or her B) must, as well as understanding its content at face value, critically evaluate its honesty or dishonesty. For both parties, both deductive and inductive aspects are involved.

A may call upon B to remember certain common experiences or to believe some reported experiences, to form certain concepts and propositions from them, and to draw certain deductive and inductive inferences from them. To achieve this end, A must guess what B knows or does not know, and how intelligent he or she is, and tailor the statement accordingly.

> For example, a teacher may want to ensure the transmission of knowledge by adding more information or explanation, giving students sufficient indices so that there will be no misunderstanding. Or for example, a biased TV news team may slant a "report" by filming or showing only certain aspects of an event, and they may air with it comments that are either explicitly tendentious or that serve their aims through a cunning choice of words and tone of voice, or they may simply add background music that produces the desired emotional reaction of sympathy or rejection.

On the other side, B has to guess, or more or less systematically estimate, what A intended by the statement made, and how reliable a witness A is. This may involve looking into one's memory banks for matching or conflicting personal experiences, researching in other sources (looking in a dictionary, the public library or the Internet, or interviewing people around one), thinking for oneself, spotting contradictions, using syllogisms, trying and testing different hypotheses, and so forth. This sort of inner discourse goes on usually unconsciously all day long when we are dealing with people, trying to understand their words and deeds.

8. EPISTEMOLOGICAL ISSUES IN MATHEMATICS

The following are a few reflections on the Philosophy of Mathematics, which I venture to offer although not a mathematician, having over time encountered[150] treatments of issues that as a philosopher and logician I found questionable. The assault on reason throughout the 20th Century has also had its effects on the way philosophers of mathematics understood the developments in that subject. Having a different epistemological background, I can propose alternative viewpoints on certain topics, even while admitting great gaps in my knowledge of mathematics.

150 Notably in 1998, when I attended certain courses at Geneva University, such as lectures (I forget by whom) on the work of Jean Piaget and others given by Prof. J.-C. Pont on the History of Mathematics. Many (but not all) of the notes in this essay date from those encounters.

1. Mathematics and Logic

Attending lectures on the work of Jean Piaget, I was struck by the confusion between logic and mathematics in his identification of learning processes. Some that I would label as mathematical, he labeled as logical; and vice versa. This is of course due to the blurring of the distinction found in a lot of modern logic. There are two aspects to this issue, according to the direction of viewing.

a) **Mathematics is used in logic**. Mathematics, here, refers mainly to arithmetic and geometry; for instances, in considerations of quantity (or more broadly, modality) in the structure of propositions or within syllogistic or a fortiori arguments.
b) **Logic is used in mathematics**. Logic is here intended in a broad sense, including the art (individual insights) and the science (concepts, forms and process) of logic; for instance, logic is used to formulate conditions and consequences of mathematical operations.

For example, the statement "IF there are 100 X at time t1 AND there are 150 X at time t2, THEN the rate of change in number of X was (150 – 100)/(t2 – t1) per unit time." Here mathematical concepts (the numbers 100,

150, t1 and t2) are embedded in the antecedent (if) of a hypothetical proposition (implication), and additionally a formula (viz. (150 – 100)/(t2 – t1)) for calculating a new quantity is embedded in the consequent (then), derived from the given quantities.

The *logical* part of that statement here is the "if-then-" statement. What makes it logical is that it is a form not limited to mathematics, but which recurs in other fields of knowledge (physics, psychology, whatever). It is a thought process (the act of understanding and forming a proposition) with wider applicability than mathematical contexts; it is more general.

The *mathematical* part of said statement is the listed numerical concepts involved and the calculation based on them – the operations involved (in the present case, two subtractions and a division. The insight that the proposed formula indeed results in the desired knowledge (the resulting quantity) belongs to mathematics. Logic here only serves to conceptually/verbally express a certain relation (the implication) established by mathematical reasoning.

We should also note the mathematical elements found in defining the "if-then-" form – notably appeal to a geometrical example or analogy of overlapping circles (Euler or Venn diagrams). Nevertheless, there clearly remains in such forms a purely logical, in the sense of non-mathematical, element; such explanations cannot fully express their meaning. The quantitative part is merely the visible tip of the iceberg of meaning; the

qualitative – more broadly conceptual – part is a more difficult to verbalize and so relatively ignored aspect.

Of course, we can also say that in the largest sense of the term logic – discourse, thought process – even mathematical reasoning is logic. The division is ultimately artificial and redundant. Nevertheless, these subjects have evolved somewhat separately, with specialists in mathematics and specialists in more general (or the rest of) logic. It is also probable, judging by the work of Jean Piaget and successors in child learning processes, that different logical or mathematical concepts and processes are learned at different ages/periods of early childhood, and there are variations in temporal order from one child to another.

Historically, it is a fact that we have adopted the separation of these investigations and a division of labor, so that logic and mathematics have been considered distinct subjects of study. Of course, there has been much communication and intertwining between these two fields, and indeed attempts at merger. Here, I merely want to indicate where the boundaries of the distinction might lie. Specifically quantitative concepts and operations are mathematics; whereas logic deals with thought processes found in other fields besides. In this view, mathematics is quantitative discourse, whereas logic is (also) non-quantitative discourse.

By making such fine distinctions, we can for instance hope to better study human mental development.

2. Geometrical Concepts have an Experiential Basis

The idea that mathematical systems such as Hilbert's[151] are "axiomatic" – that is, pure of any dependence on experience is a recurring myth, which is based on an erroneous view of how knowledge of this field has developed. I have discussed the source of this fallacy at length in my *Future Logic* (see chapter 64, among others); here I wish to make some additional, more specific remarks.

I do not deny that Hilbert's postulates are mutually consistent and by themselves sufficient to develop geometrical science. My objection is simply to the pretentious claim that his words and propositions are devoid of reference to experience. We need only indicate the use of logical expressions like "exists," "belonging," "including," "if – then –," etc., or mathematical ones like "two," "points" "line," etc., to see the dependence.

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151 I write this looking at a university handout listing the "axioms (or plan) of Hilbert's system", in four groups (belonging, order, congruence and parallels). I was struck with the numerous appeals to "stolen concepts" in it (see *Future Logic*, chapter 31.2)

Take for example the concept of a group (to which something "belongs" or in which something is "included"). The concept is not a disembodied abstract, but has a history within knowledge. The idea of grouping is perhaps derived from the practice of herding animals into an enclosure or some such concrete activity. The animals could all be cows – but might well be cows mixed with goats and sheep. So membership in the group (presence in the enclosure) does not necessarily imply a certain uniformity (a class, based on distinctive similarity – e.g. cows), but may be arbitrary (all kinds of animals, say). Thus, incidentally, the word group has a wider, less specific connotation than the word class (which involves comparison and contrast work). Without such a physical example or mental image of concrete grouping, the word would have no meaning to us at all. So, genetically, the word grouping – and derived expressions like belonging or including, etc. – presupposes a *geometrical* experience of some sort (a herding enclosure or whatever). We cannot thereafter, after thousands of years of history of development of the science of geometry, claim that the word has meaning without reference to experience. Such a claim is guilty of forgetfulness, and to claim that geometry can be built up from it is circular reasoning and concept-stealing.

It would be impossible for us to follow Hilbert's presentation without bringing to mind visual images of points, successions of points, lines crisscrossing each other, this or that side of a line, etc. Those images at least

are themselves mental objects in internal space, if not also end products of our past experiences of physical objects in external space. The value and justification of Hilbert's work (and similar attempts, like Euclid's) is not that is liberates geometry from concrete experiences of objects in space, but merely that it logically orders geometrical propositions so that they are placed in order of dependence ***on each other*** (from the least to the most).[152]

Geometrical "axioms" are thus not absolutes somehow intuited *ex nihilo*, or arbitrary rules in a purely symbolic system[153], but hypotheses made comprehensible and reasonable thanks to experience. That experience, as I argue below, need only be phenomenal (it does not ultimately matter whether it is "real" or "merely illusory") but it needs to be there in the first place. That experience does not have to give us the axioms ready-made – they remain open to debate – but it gives us the concepts underlying the terms we use in formulating such axioms. In this sense, geometry – and similarly all mathematics – is fundamentally empirical (in a

152 Even purely "logical" if-then- statements depend for their understanding on geometrical experience. When I define "if P, then Q" as "P and nonQ cannot coexist" – I visualize a place and time where P and nonQ are together (overlapping) and then negate this vision (mentally cross it off). One cannot just ignore that aspect of the ideation and claim a purely abstract knowledge.

153 As Cantor claims.

phenomenological sense) – even if much rational work is required beyond that basic experience to express, compare and order geometrical propositions.

It is futile to attempt to avoid this observation by talking of succession of symbolic objects, A, B, C. Even here, I am imagining the symbols A, B, C in my mind or on paper as *themselves concrete objects* placed in sequence next to each other! I am still appealing to a visual – experiential and spatial – field. Thus, any claim to transcend experience is naïve or dishonest. **Experience is evidently a *sine qua non* for any axiomatization, even though it is clearly not a *sufficient* condition.** The experiences *make possible* and anchor the axioms, but admittedly do not definitely *prove* them – they remain hypotheses[154]. Geometry is certainly not as some claim a deductive science, but very much an inductive one, and the same is true of other mathematical disciplines.

154 Euclid's axioms were the first attempted hypotheses, Hilbert and others later attempted alternative hypotheses.

3. Geometry is a Phenomenological Science

3.1 The so-called axioms of geometry have changed epistemological status in history as follows:

a) At first, they seemed *obvious*, i.e. immediately proved by experience (naïve view). But the naïve view, not being based on reflection, is rejected as such once reflection begins.

b) Then they were regarded as *axioms*, i.e. theses without possible credible alternatives (axiomatic view). But this view, which is a worthy attempt to justify the preceding, suffers upon further reflection from an apparent arbitrariness. The label "axiom" is found to be a pretentious claim to an absolute – when denial of it does not result in any contradiction.

c) Then it was considered that they were *merely credible hypotheses among other possibilities*, i.e. that alternative hypotheses were conceivable and possibly credible (hypothetical view). One can even imagine that different geometries might be applicable in different contexts, and regard the Euclidean model as approximately representative on the human everyday scale of things, and thus consider that all or many of these alternative hypotheses are equally credible.

d) Then they were thought to be *pure inventions of the human mind*, incapable of either verification or falsification (speculative view). This view may at first sight seem epistemologically unacceptable, since it claims to transcend the hypothetical view and posits to know a truth that is by definition beyond our testing abilities. However, it must be understood in the context of the doubt in the existence of geometrical points, lines or surfaces. That is, it is a denial of geometrical science as such.

However, as we shall see, these latter criticisms can themselves be subjected to rebuttal, especially on phenomenological grounds.

3.2 The arguments put forward against geometrical science as such[155] are indeed forceful. We have considered the main ones in the section on 'Unity In Plurality,' pointing out that physical objects do not, according to modern physical theories based on scientific experiments, have precise corners or edges or surfaces, but fuzzy, arbitrarily defined limits, so that we are forced to admit all things as ultimately just ripples in a single world-wide entity.[156]

There might be a fundamental weakness in such argumentation – a logical fault it glosses over. If the

155 Note well, this is not a discussion of space and time, but of the discipline called Geometry.

156 See chapter IV.5, above.

whole of modern physical science *is itself based on* the existence and coherence of geometrical science (by which I of course do not mean only Euclidean geometry, but all the discipline developed and accepted over time by mathematicians), can it then turn around and draw skeptical conclusions about that Geometry? Remember, all the *mathematics* of waves and particles, of space and time, were used as premises, together with empirical results of physical experiments, to inductively formulate and test the physical theories we currently adhere to – can the latter physical conclusions then be used to argue against these very mathematical premises?

Logically, there is no real self-contradiction in this. The sequence is "Math theory" (together with empirical findings) implies "Physical theory" that in turn implies doubt on initial "Math theory." So what we have in fact is denial of (part of) the antecedent by the consequent, which is not logically impossible, though odd. The consequent is not denying itself, although it puts its own parent in doubt.

Thus, a more pondered and moderate thesis about geometry has to be formulated, which avoids such difficulties while taking into account the aforesaid criticisms regarding points, lines and surfaces. Waves and particles (which are presumably clusters of waves) may somehow be conceivable and calculable, without heavy reliance on the primary objects of our current geometry (points, lines and surfaces), which apparently have no clear correspondence in nature. In the meantime,

our current geometry can legitimately be used as a working hypothesis, since it gives credence to our physical view.

3.3 Let us now consider where the extreme critics of geometry may have erred. We can accept as given the proposition that no dimensionless points, no purely one-dimensional lines, no purely two-dimensional surfaces (Euclidean or otherwise) can be pointed to in natural space-time accessible to us.

This is granting that to exemplify such primary objects of geometry we would need to find material objects with definite tips, edges or sides – whereas we know that all material objects are made of atoms themselves made of elementary particles themselves very fuzzy objects, apparently subject to Heisenberg's Uncertainty principle.

Nevertheless, we tend to regard the ultimate nature of these nondescript bodies to be clusters of "waves of energy". This is of course a broad statement, which ignores the particle-wave predicament and which rushes forth in anticipation of a unified field theory; furthermore, it does not address the question regarding what it is that is being waved, since the Ether assumed by Descartes has since the experiments of Michelson and Morley and Einstein's Relativity theory been (apparently definitively) discredited.

But my purpose here is not to affirm this wave view of matter as the ultimate truth, but rather to consider the impact of supposing that everything is waves on our question about the status of geometry. For if particles are

eventually decided to be definitely not entirely reducible to waves, then geometry would be justified by the partial existence of particles alone; so the issue relates to waves.
If we refer to the simplest possible wave, whatever it be, a gravitational field or a ray of light – it behaves like a crease or dent in the fabric of the non-ether where waves operate (to use language which is merely figurative). Such hypothetical simplest fractions of waves surely have a geometrical nature of some sort. That is to say, if we could look[157] that deep into nature, we would expect to discern precise points, lines and surfaces – even if at a grosser level of matter we admittedly cannot.
Thus, I submit, the possible wave-nature of all matter is not really a forceful argument against geometry. Even if we can never in practice precisely discern points, lines and surfaces, because there may be no material bodies of finite shape and size, geometry remains conceivable, as a characteristic of a world of waves.

157 Of course, such looking would have to be independent of a Heisenberg effect. A pure act of consciousness without material product. Clearly, this assumes that consciousness is ultimately a direct relation to matter, which transcends matter. Heisenberg's argument refers to experimental acts, interactions of matter with matter, which we use to substitute consciousness of an effect for that of its cause. The Uncertainty principle is not a principle about consciousness modifying its objects, but about the impossibility of unobtrusive experiment.

All the above is said in passing, to clear out side issues, but is not the main thrust of my argument in defense of geometry. We admittedly can perhaps never hope to perceive waves directly, i.e. our assumption of their geometrical nature is mere speculation. But that is not an argument of much force against geometry as such, in view of *its existence and practical successes*, which mean that geometry is not speculation in the sense of a thesis incapable of verification or falsification, a pure act of faith, but more in the way of a hypothesis that is repeatedly confirmed though never definitely proved. Simply an inductive truth – like most scientific truths about nature!

But let us consider more precisely how geometry actually arises in human knowledge. It has two foundations, one experiential (in a large sense) and the other conceptual.

3.4 The **experiential** aspect of geometrical belief is that *there seems to be* points, lines (straight or curved), surfaces (flat or warped) and volumes (of whatever shape) in the apparently material world we sense around us as well as in the apparently mental world of our imaginings. This *seeming to be* is enough to found a perfectly real and valid geometry. **The justification of geometry is primarily *phenomenological*, not naturalistic!**

Seeming is (I remind you) the appearance, or (in this case) phenomenal, level of existence, prior to any judgment as to whether such phenomenon is a reality or an illusion. In other words, geometrical objects do not

have to be proven to be realities – in the sense of things actually found in an objective physical nature – they would be equally interesting if they were mere illusions! Because illusions, too, be they mere 'physical illusions' (like reflection or refraction) or mental projections, are existents, open to study like realities.

The study of phenomena prior to their classification as realities or illusions is called phenomenology. At the phenomenological level, 'seeming to be' and 'being' are one and the same copula. Only later, on the basis of broad, contextual considerations, is a judgment properly made as to the epistemological status of particular appearances, some being pronounced illusions, and the remainder being admitted as realities[158]. If, therefore, geometrical science has a phenomenological status, i.e. if it is a science that can and needs be constructed already at the level of phenomena, it is independent of ultimate discoveries about the physical world.

The mere fact, admitted by all, including radical critics of geometry, that we *get the impression*, at the human everyday level of perception, that a table has four corners and sides and a flat top, *suffices* to justify geometry. This middle-distance depth of perception, even if it is ultimately belied at the microscopic level of atoms or the macroscopic level of galaxies, still can and has to be

158 At which stage "is" acquires a more narrow and ambitious meaning than "seems to be".

considered and analyzed. A science of geometry only requires *apparent* points, lines and surfaces.

And even if this last argument were rejected, saying that the points, lines and surfaces we seem to see in our table are just mental projections by us onto it, we can reply that even so, mental projections of points, lines and surfaces are themselves real-enough objects existing somehow in this world. They may be illusions, in the sense that they wrongly inform us about the external world, they may be purely internal constructs, but they still even as such *exist*. A subjective existent is as much an existent as an objective one – in the sense that both are equally well phenomena.

The mental matrix of imagination, at least, must therefore be capable of sustaining such geometrical objects. And if this restricted part of the world – our minds – displays points, lines and surfaces – then geometry is fully justified, even if the rest of the world – the presumed material part – turns out to be incapable of such a feat and geometry turns out to be inapplicable to it.

But the latter prospect thus becomes very tenuous! As long as geometry could be rejected in principle, by the elusiveness of its claimed objects under the microscope, there was a frightening problem. But once we realize that the very existence of Geometry requires the possibility somewhere of the concretization of its objects – even if only as a figment of our imaginations – the problem is dissolved. In short, our very ability to discuss geometrical objects, if only to doubt their very existence,

is proof of our ability to at least produce them in the mind, and therefore of their ability to exist somewhere in this world. And if all admit that geometrical objects can exist in some part of the world (the mental part at least), then it is rather inductively difficult and arbitrary to deny without strong additional evidence that they exist elsewhere (in the material part). The onus of proof reverts to the deniers of material geometry.

3.5 The **conceptual** aspect of geometrical belief must however be emphasized, because it moderates our previous remarks concerning the experiential aspect. Conceptualization of geometrical objects has three components, two positive ones and a negative one.

a) The primary positive aspect of geometrical conception consists of ***rough observation, abstraction and classification***, (i) refers to the above mentioned concrete samples of points, lines, surfaces and volumes, apparent in the material and mental domains of ordinary experience - this is phenomenological observation; and (ii) observes their distinctive similarities (e.g. that this and that shape are both lines, even though one is straight and short and the other is long and curved, say) - this is abstraction; and (iii) groups them accordingly under chosen names - this is classification.

b) The negative aspect of geometrical conception is the intentional act of ***negation***, reflecting the inadequacy of mere reference to raw experience. Unlike their empirical inspirations, a theoretical point has *no* dimension (no length, no breadth, no depth); a theoretical line is

extended in *only one* dimension – it has no surface; a theoretical surface in *only two* dimensions – it has no volume. Each theoretical geometrical object excludes certain empirical extensions. It is thus an abstraction (based on concretes, of course) rather than a pure concrete.

As I have explained elsewhere, negation is a major source of human concepts, allowing us to form them without any direct experience of their objects. That is, while the concrete referents of "X" may be directly perceivable; those of "Non-X" need not be so. We consider defining them by negation of X as sufficient – since every thing (except the largest concept "thing", or existent) has to have a negation, since every thing within the universe is limited and leaves room for something else.

Such negative definition of the geometrical objects is not, however, purely verbal or a mere conjunction of previous concepts ("not" + "X"). There is an active imaginative aspect involved. I mentally, or on paper, draw a point or a line, and mentally exclude or rub-off further extensions from it. Thus, even if my mental matrix, or my pencil and paper, may be in practice unable to exemplify for me a truly dimensionless point or fine line or mere surface, I *mentally dismiss* all excessive thickness in my sample. This act may be viewed as a perceptual equivalent of conceptual negation.

c) Another, more daring positive conceptual act may be called ***assimilation***, which we can broadly define as:

regarding something considerably different as considerably similar. This a more creative progression by means of somewhat forced simile or analogy, through which we expand the senses of terms.

For example, the concept of a "dimension" of space is passed on to time. The Cartesian fourth dimension is at first perhaps thought up as a convenient tool, but eventually it is reified and in Einstein we find it cannot be dissociated from space. Our initial concept of dimension has thus shifted over into something slightly different, since the time extension of bodies is distinctively one-directional and not as visible as their space extensions (see more on this topic in earlier chapters).

Another example is the evolution from Euclidean geometry, the first system that comes to mind from ordinary experience (and in the history of geometrical science), to the later Non-Euclidean systems. A shape considered as "curved" in the initial system is classed as "straight" or "flat" in another system. We have to assimilate this mentally – i.e. say to ourselves, within this new geometrical system, straightness or flatness has another concrete meaning than before, yet *the role* played by these previously curved shapes in it is equivalent to that played by straight lines or flat surfaces Euclidean system.

> Note well how ordinary experience of everyday events and shapes are repeatedly and constantly appealed to by the mind in all three of the above

> conceptual acts. It is important to stress this fact, because some mathematicians try to ignore such experiential grounding and cavalierly claim that what they do is independent of any experience. The whole of the present essay is intended to belie them, by increasing awareness of ***the actual genetic processes*** underlying the development of mathematical sciences.

The academic exercise of formulating the starting assumptions ("axioms") of the various geometrical systems does not occur in a vacuum. In order to understand whether "parallels" meet or not, I visualize ordinary (Euclidean) parallels, then imagine them curving towards each other or curving apart; then I say "even though they meet or spread apart, I may still call them parallel within alternative geometrical systems". Without some sort of concretization, however forced, the words or symbols used would be meaningless.

3.6 Finally, I'd like to mention here in passing that many of the remarks made here about geometry apply to other fields of mathematics. Thus, arithmetic should also be viewed as a phenomenological science. That is, its primary objects – the unit ("1") and growing collections of such units ("2", "3", etc.) – that is, natural, whole, positive, real numbers – do not require any reference to an established "reality," but could equally be constructed from a sense field (visual or other) composed entirely of illusory events or entities. It is enough that something

appears before us to concretely grasp a unit, and many things, to concretely grasp the pluralities.

4. On "New Arithmetical Entities"

By arithmetic entities, we initially mean units and pluralities (the natural numbers). These objects, which are not unrelated to geometrical objects, need only be phenomenal. One can conceptualize a unit and pluralities of units equally well from an illusory or imaginary field of perception as from a real one. The sense-modality involved is also irrelevant: shapes, sounds, touch-spots, items smelt or tasted – any of these can be units.

What is the epistemological status of novel arithmetical entities? Some mathematicians apparently claim that a concept like the negative number –1 or the imaginary number √-1 is a "new entity" incapable of being reduced to its constituent operations (-, √) and numbers (1, etc.). The definitions of such abstract entities are given in series of equations like:

> Where $-1 + 1 = 0$, $-2 + 2 = 0$, etc….
> or
> Where $\sqrt{-1} \bullet \sqrt{-1} = -1$, $\sqrt{-2} \bullet \sqrt{-2} = -2$, etc….

However, this means that the signs used (– , + , = , √ , • ,⁄ , etc.) are *each in turn a new thing in each definition*, even though presented to us in the same physical form

(symbol-shape and name) as existing entities. Here, the sign that was originally an operator (a relational concept between two terms) has become attached to a term (making of it a new term) – so that the sign itself has changed nature.[159]

It seems clear to me that this doctrine of irreducibility and newness, while a good-faith try at explaining the leaps of imagination involved in such mathematical concepts, in fact involves some dishonesty since such definitions tacitly rely on the implicit meanings of the building blocks that are their sources both logically and in the progression and history of thought.

Rather we should, in my view, look at these leaps as **indefinite stretching of meaning**, i.e. we say: "let this

159 Personally, with reference to terminology used in formal logic, I would say that negative numbers or irrational numbers or imaginary numbers are *compounds of copula and predicate*. They are artificial predicates, consisting of a normal predicate (final term) combined with the relational factor (copula) to any eventual subject (first term). They "hold-over" or "carry-over" a *potential* operation – that of subtracting or finding a root or both – until the unstated term (the subject) is specified. Such expressions give rise to a predicate in the original sense (i.e. a number), and disappear, when the operation is actually effected. Their status as effective predicates is only utilitarian. It is interesting to note, in this context, that within general logic, such *permutation* (as it is called) is not always permissible (see my treatment of the Russell Paradox, in *Future Logic* chapter 45, for example). For this reason, one should always be careful with such processes.

concept (-,√, whatever) be widened somewhat (to an undecided, undetermined extent) so that the following *analogy* be possible…." This extending of meaning (or intention) is itself *imaginary*, in that we cannot actually trace it (just we cannot concretize the concept of infinity by actually going to infinity, but accept a hazy non-ending).

(Such development by analogy is nothing special. As I have shown throughout my work, all conceptualization is based on grouping by similarity, of varying precision or vagueness – or the negation of such. Terms are rarely pre-definable, but are usually open-ended entities whose meaning may evolve intuitively as more referents are encountered.)

We thus produce doubly imaginary *hypothetical* entities. And here an analogy to the concrete sciences is possible, in that the properties of such abstract entities are tested (in accordance with adductive principles), not only *logically* in relation to conventions and arbitrary laws initially set up by our imagination (as the said mathematicians claim), but also *empirically* in relation to the properties known to be obtained for natural numbers.

Natural numbers, therefore, do not merely constitute a small segment of the arsenal of mathematical entities (as they claim), but have the status of *limiting cases* for all other categories of numbers (negatives, imaginaries,

etc.)[160]. **If any proposed new abstract formula *does not work for natural numbers*, it is surely rejected.**

This is evident, for instance, in William Hamilton's attempted analogy from couples to triplets. He found that though complex numbers expressed as couples (with one imaginary number $i^2 = -1$) could readily be multiplied together, in the case of triplets (using two imaginary numbers $i^2 = j^2 = -1$) results inconsistent with expectations emerged when natural numbers were inserted in the formula.[161]

Note particularly this reference to two (or more) different imaginary numbers, namely ***i*** and ***j*** whose squares are both equal to –1. Here, we introduce ***j*** as an imaginary extension of the concept of ***i*** that has ***no distinguishing mark other than the symbolic difference applied to it***! We simply imagine that the meaning of ***j*** might somehow differ from that of ***i*** so that although $i^2 = j^2 = -1$ it does not follow that $i = j = \sqrt{-1}$ (or even that $ij = -1$). An unstated and unspecified differentia is assumed but never

160 Natural numbers have, and thus retain, an exceptional ontological status. Their derivatives are thus inductively adapted to the previously established algebraic properties of natural numbers. The point of all this is, of course, to develop a universally effective algebra – *processes and rules that function identically for natural numbers and all their derivatives*, uniform behavior patterns.

161 Later, he showed that quadruplets or quarternions - involving three imaginary numbers *i*, *j*, *k* – could however be multiplied together. Similarly with an eight-element analogy.

in fact provided[162]. This is yet another broadening of mathematics "by stretching" (i.e. by unsupported analogy, as above explained).[163]

The example here referred to clearly shows that, however fanciful its constructs (by definition and analogy), mathematics undergoes an occasional empirical grounding with reference to natural numbers, which limits the expansiveness of its imagination and ensure its objectivity. New mathematical entities, although initiated

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162 At a later stage, these different imaginary numbers *i*, *j*, *k* etc. are associated with geometrical dimensions – but such application is not relevant at the initial defining stage.

163 I should here repeat that this mental process is not limited to the mathematical field. For instance, in psychology, when we speak of "mental feelings", as distinct from physical feelings (experienced viscerally, in the chest or stomach or rest of the body, whether of mental or purely physical source), we are engaging in such analogy. By definition, mental feelings (e.g. I *like* you) have no concrete manifestation that we can point to; we introduce them into our thinking by positing that they are somehow, somewhat similar to feelings experienced in the physical domain, but they occur in the mental domain and are much less substantial (more abstract). The word "feeling" thus takes on a new wider meaning, even though we have no clear evidence (other than behavioral evidence of certain values) for the existence of a mental variety of it. Thus, Mathematics should not be singled out and scolded for using such processes – they are found used in all fields – but it is important to notice where such leaps of imagination occur and acknowledge them for what they are, so that we remain able to test them empirically as far as possible. Incidentally, such leaps are comparatively rare in Logic.

by mere conventions or arbitrary postulates, must ultimately pass the test of applicability to natural numbers, i.e. consistency with their laws, to be acceptable as true mathematics. Natural numbers thus fix empirical restrictions on the development of theoretical mathematics.

5. Imagining a Thoroughly Empirical Arithmetic

If I may be allowed some far-out, unorthodox, amateur reflections consider the following concerning fractions of natural numbers[164].

A physical body can only really be divided into *n* parts, say, if it has a number of constituents (be these molecules or atoms or elementary particles or quarks or whatever) divisible exactly by *n* – otherwise, the expression 1/n has no realistic solution!

For example, a hydrogen atom cannot be divided by two, unless perhaps its constituent elementary particles contained an even number of quarks. Or again, if I wanted to divide (by volume or weight) an apple fairly among three children, it would have to have a number of identical apple molecules precisely divisible by three. Otherwise, each child would get 0.333… (recurring) part of an apple – which we have no experimental proof is practically possible and indeed we know is not!

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164 I spoke of these ideas once, back in April 1998, at a round-table at the Archives Piaget in Geneva.

> The concept of an infinitely recurring decimal is a big problem – consider the debates about Π (pie) in the history of mathematics. How can I even *imagine* going on adding digits to infinity, when I know my life, and that of humanity, and indeed of the Universe are limited in time, and when I know that space is physically limited so that there would not be place enough for a real infinity of digits even if there were time enough? Surely, such a concept may be viewed as an antinomy.

What this means is that arithmetic as we know it is not necessarily a thoroughly "empirical" science – it is an ideal assuming ***infinite divisibility*** of its objects. The mere fact that I can imagine an apple or atom as divisible at will, does not make it so in the real world. Though in some cases the number ½ or 1/3 may have a real object, a realistic solution, in many cases this is in fact a false assumption. [165]

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165 We should also perhaps make a distinction between divisibility and *separability*. Even if I may distinguish a number of equal parts in a body, I may not in fact (by some natural or conventional law) be able to actually isolate these constituents from each other. In which case, what would division of that number *by itself* factually mean? Would say 5/5 equal 1, or would it be a meaningless formula, without solution? Is 5/5=1 a universal equation or is it only *true* in specific situations? (By conventional law, I mean for example, when farthings or halfpennies were withdrawn from circulation, a penny could no longer be subdivided in accounting.)

Even in the mental domain, although we can seemingly perfectly divide objects projected in the matrix of imagination (whatever its "substance" may be), it does not follow that viewed on a very fine level (supposing we one day find tools to do so) such division is always in fact concretely possible.

These thoughts do not invalidate the whole of arithmetic, but call for an additional field or system of arithmetic where the assumption of infinite divisibility of integers is *not* granted. That is, in addition to the current "ideal" or a-priori arithmetic (involving "hypothetical" entities, like improper fractions or recurring decimals), we apparently need to develop a thoroughly "empirical" or a-posteriori – one might say positivist – arithmetic, applicable to contexts where division does not function.[166]

The same may of course be said of the related field of geometry. Infinite divisibility is a mere postulate, which may stand as an adopted axiom of a restricted system, but which should not at the outset exclude alternative postulates being considered for adjacent systems. The mathematics based on such postulate may be effective –

166 Clearly, I am using the word "empirical" here in a specific sense. Even "ideal" arithmetic has an empirical *basis*, in the sense that at least its primary objects - the natural numbers 1, 2, 3, … - are phenomenological givens. But it does not follow that further processes, such as division, always have an empirical basis – hence my use of the adjective *thoroughly* empirical.

it seems to work out okay, so perhaps its loose ends cancel each other out in the long run – but then again, the development of other approaches may perhaps result in some new and important discoveries in other fields (e.g. quantum mechanics or unified field theory)[167].

Why should mathematics be exempt from the pragmatic considerations and norms of knowledge used in physics? Can it, like alchemy or astrology were once, be uncritically based partly on fantasies? Surely, every field of knowledge must ultimately be in perfect, holistic accord with every other field and with all experience – to be called a "science" at all. The division of knowledge into fields is merely a useful artifice, not intended to justify double standards and ignorance of seemingly relevant details. Once philosophy has understood the inductive nature of knowledge, it demands severe scrutiny of all claims to a-priori truth and strict harmony with all a-posteriori truths.

We could get even more picky and annoying, and argue that no material (or mental) body is as finite as it appears, as we did in the section on 'Unity In Plurality.'[168] Since the limits of all material or mental entities are set arbitrarily, it follows that everything is one and the same

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167 For all I know, such alternative mathematics already exist. I do not claim to know the field, nor have any desire to seem original or revolutionary. These are primarily philosophical reflections.

168 See chapter IV.5, above.

thing, and that nothing is at all in fact divisible. However, such (almost metaphysical) reflections need not (and won't) stop us from pursuing mathematical knowledge, since they gloss over issues to do with causality[169].

That mathematical science is like all knowledge inductive, and not merely deductive, is evident from any reading of the history of the subject. Mathematicians understand the word induction in a limited sense, with reference to leaps from examples or special cases to generalities (abstractions or generalizations) or to analogies ("as there, so here" statements). But I am referring here to many more processes. Individual mathematicians, as they develop mathematics, use trial and error (adduction), putting forward hypotheses and analyzing their consequences, rejecting some as inadequate. Initially accepted mathematical propositions have often been found mistaken by other or later mathematicians, due for instances to vagueness in definitions or to short-circuits in processing, and duly criticized and corrected.

Mathematicians are well aware of the breadth of their methodology in practice. Mathematics is a creative enterprise for them, quite different from the learning process students of the subject use. The latter have the end-results given them on a platter, so that their approach

169 Which issues I will be dealing with in my forthcoming work on the subject.

is much more deductive. Mathematicians do not merely recycle established techniques to solve problems and develop new content; to advance they have to repeatedly innovate and conceive of new techniques.

9. THEOLOGY WITHOUT PREJUDICE[170]

170 This chapter was left out of the first edition of *Phenomenology*.

1. Applying Logical Standards to Theology

Most theologians discuss God without telling us how they came to know so much about Him; they think that to refer to "revelation" through some prophet or other, or to their own alleged "insights" is enough justification. On the other hand, some science-minded philosophers do not admit of any validity to theology; they argue that the concept of God is a figment of mankind's imagination and therefore that nothing of scientific value can be said about it. Both these approaches are logically improper. Or, as it is written in Proverbs 18:13:

> "*He that answereth a matter before he heareth it, it is folly and shame unto him*."

Theology is undoubtedly a legitimate branch of philosophy. It is intrinsically *speculative*, in that we cannot ever hope *to prove or disprove* its basic premise that God exists, as I showed in *Judaic Logic*. Briefly put:

a. When we try to prove the existence of God with reference to the existence of the universe, or to some empirical feature (such as the order or beauty of things) or content (such as life or mankind) of the universe, we inevitably get into circular argument. For then *the same standard of judgment has to be applied* to the concept of

God, i.e. we need to explain His existence or attributes and cannot take them for granted. *All the more so*, since He is less empirically evident than the things we have appealed to the concept of God to explain.

b. When we try to disprove the existence of God with reference to some empirical data or theoretical construct, we inevitably open the way to one-upmanship. However we depict the universe, the believer can always say: "well, *that's* how God made it!" The scientist (physicist, cosmologist, geologist, biologist, whatever) may well argue that a Biblical or other account of things is incorrect according to current science, but the scientist will find no argument to deny the claim that the universe *as he describes it* may have its ultimate source in "God". The scientist cannot deny "metaphysics" to the believer, without himself (i.e. the scientist) engaging in "metaphysics". Claiming to know that something beyond the knowable *is not*, is as pretentious as claiming to know that it *is*!

The concept of God is indeed a theoretical construct, whether someone else's or one's own. This does not imply it to be invalid or irrelevant, for the simple reason that *all* conceptual knowledge is ultimately based on "theoretical construction", including all orthodox science. A concept may be admittedly speculative, and yet of interest and relevance to human thought and

action. On the other hand, it does not follow that the idea of God can be formed without regard to *empirical and logical tests*. Our discourse on this subject like any other has to be in reasonable accord with current knowledge and internally consistent.

Purely scientific knowledge follows the laws of induction very obediently: it generalizes when that is recommended and particularizes when that is recommended. When it does not find what it is looking for (e.g. a particle or a missing link) after diligent search, it assumes that what it sought was absent all along. By way of contrast, speculative knowledge remains a bit freer, refusing to generalize offhand from "not found" to "nonexistent". Scientists also speculate, keeping their minds open on certain theories or predictions for a long time. Without this attitude, their thought would always be straitjacketed by excessive formalism.

Religious thinkers have a right to a similar allowance, and should not be discredited offhand by the very nature of their search by closed-minded pseudo-scientific totalitarians. Such rejection would not be science, but secularist dogma. Nevertheless, it is true that religious thought is very often excessively informal, and tends to proceed willy-nilly without regard for the rules of induction, ignoring empirical evidence and indulging in shamelessly manipulative pseudo-deductions. Here as in any other field, we have the right to demand honesty and sanity.

In particular, I would characterize as cretinism the debonair approach of some religious fundamentalists, consisting in simply refusing to accept the current findings and interpretations of science, like the Big Bang cosmological theory or the Evolution theory in biology (or in the not so faraway past, the Copernican system). Such theories are in no way (as far as I can tell) incoherent with Creationism, i.e. the simple idea that God created the material universe, even if some scientists provocatively declare them to be. Even the idea that the material universe is perpetual can be reconciled with Creationism, by considering it as a timeless emanation of God.

Such theories may well be in a state of tension with too literal a reading *of the Bible* or similar documents, however. In that case, the holy book defender ought not to discredit religion entirely by insisting on antiquated viewpoints, but should rather stick to basics and essentials, and progressively adapt his interpretations accordingly. Even if the current scientific theories are not definitely proved and scientists frankly admit to having difficulties with them, it is silly to fight a rearguard battle against sincere seekers after truth, by (for instance) forbidding the teaching of such theories in schools.

It is also worth stressing the immense riches of reflection involved in scientific thought. Those

> who resist progress should but consider the grand tapestry of evolving life taught by modern biology, which is just a continuation of the still broader narrative of the evolution of matter taught by modern cosmology. What a loss to humanity if these profound insights were lost, which teach us humility and solidarity.

The phenomenological approach to theology consists simply in remaining at all times aware of the processes through which our theological beliefs or disbeliefs are generated and built-up. Our reason can then evaluate the processes, and in a balanced manner (with neither excess rationalism nor excess emotionalism) arrive at moderate, non-ideological conclusions.

It is important to accept at the outset that God's existence and attributes can, for us common folk who have not been privileged with direct and epistemologically indubitable experiences or visions of God, only be hypothesized, and indeed only be speculated upon. *Concepts* of God and His attributes can be built up and made cogent, but can never ordinarily be established. Some doubt always does and will remain, and this is where faith is brought into play (making certain actions possible despite legitimate doubt).

> And by the way, if these limits to human knowledge are evidently true with respect to God and his defining attributes, how much more true they are with regard to all the stories, rituals and laws found in written and oral traditions. The latter do not follow

automatically upon faithful acceptance of the former, and there are many conflicting theses (all the religions and sects).

2. Conceiving the Divine Attributes

The epistemological question as to how we humans conceive the Divine attributes must not be confused with the issue of proving that the Creator has them (granting His existence, which is not easy to prove[171]). Explaining the arising of a concept (if only for speculative purposes) is easier than, and of course prior to, proving it. It is widely understood, by believers, agnostics and atheists alike, that we conceive God's attributes by means of *extrapolation from our own limited attributes*. Even God's **unity, uniqueness, ubiquity and infinity** are so conceived. Any valuable or virtuous power found in us in limited degrees, is considered as present in God in unlimited degree. Thus:

- From our partial power of volition or freewill, we can conceive that God has or would have total power – **omnipotence** (or all-powerfulness).
- From our partial power of knowledge, we can conceive that God has or would have total power – **omniscience** (or total knowledge).

171 Or to disprove.

- From our partial power of loving-kindness and mercy, we can conceive that God has or would have total power – **all-mercifulness** (or complete kindness).
- From our partial power of justice, we can conceive that God has or would have total power – **perfect justice**.

Likewise for all values and virtues, we pass from our own imperfect qualities to God's extreme possession of them. We generalize from 'some' good in us to 'all' good in Him. This is an ordinary *inductive* movement of thought, requiring no special justification. From a relatively empirical concept, we project a hypothetical concept, which is thereafter open to discussion (further confirmation or eventual rejection). We do not need to actually stretch our minds as far as the extreme, and personally experience infinity, omniscience or omnipotence, to be able to conceive it[172]. Just as general propositions are knowable[173], so are hyperbolic concepts. However, to repeat, conceiving does not imply proving.

> Note that, inversely, with regard to faults or vices, while we have some, God has none. Here, we do not go from some bad to all bad, but to no bad. This is done to maintain speculative consistency:

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172 My position here is intended to mitigate some of my statements in *Judaic Logic*, p.206.

173 This is incontrovertible, since its denial is self-contradictory, being a general proposition itself.

> we cannot affirm extreme positives, if we do not deny the corresponding moderate or extreme negatives. Some people hypothesize both positive and negative gods (the Zoroastrian religion, or the currents of Christianity which believe in an independent devil); but in those cases neither proposed entity has *stricto sensu* extreme attributes, since they are in competition.

As it happens, while these generalizations individually are logically acceptable, in some cases taken together with each other or with other items of knowledge or belief, they may cause logical difficulties. We are then called upon to try and reconcile the conflicting theses. Notably, Divine omnipotence may be viewed as in logical conflict with natural determinism (in the case of Divine Providence) or human freewill (as an abdication of power by God). Or omniscience may be regarded as conflicting with the unpredictability of human freewill. Or again, infinite mercy and total justice can be considered as in mutual conflict, as well as in conflict with the apparent facts of unpunished vice or unmerited enjoyment, or of unrewarded virtue or undeserved suffering.

But as we shall see, our conceptions of the Divine attributes are not just generated by such simple extrapolations of human attributes; more refinements are involved in each case.

- Our concept of omnipotence is also based on the human analogy that just as a person (or group) can

apparently interfere in the otherwise natural course of some events, so can God but only more so, i.e. whatever the events. Also, just as one person (or group) can physically or through mental (including verbal) influence delimit, force or block, incline or disincline another to engage in certain voluntary acts, so God can exercise His will on occasion without implying that Man in principle lacks freewill.

- On the other hand, whereas human freedom of will is naturally limited, i.e. there are natural laws and human events (and possibly Divine decrees) no person or group can circumvent or affect, in the case of God as we conceive Him no such limitation exists, He is stronger than all other forces combined. Though God could make Nature lawless or prevent any human freedom of choice, He usually chooses not to act thus, but only exceptionally (according to Biblical accounts of miracles) interferes in natural or human affairs. Precisely that is His apparent will, that there should be natural law and human freedom of will, since that is what seems to be occurring.
- Similarly, regarding omniscience, we can render our concept of God's power more credible by considering the corresponding smaller-scale human power in greater detail. Some philosophers consider that Divine omniscience is logically incompatible with human freewill, since it would imply that God knows Man's choices before he makes them. However, if we

reflect, we can see on the human scale that these ideas are more compatible than that.

- A person can, through memory or by inferences, see his own or other people's past acts of will: such *hindsight* by us of volitional events does not seem contradictory. If we conceive God as located at the end of time (our own or all history or eternity), looking back at all our acts of will, the problem dissolves. That is, the said problem arises due to an assumption of foresight (as would be the case for humans), but seems less intractable if hindsight (for God) is assumed.
- As I argue elsewhere (e.g. see chapter VI, 2.3), we can *experience* motion directly within the present moment, i.e. without recourse to memory. It follows that the present is for us *extended in time* (a moment), and not just a point in time (an instant). The extent of this experienced stretch of time is admittedly small in our case, but it is conceivably larger for God's span of awareness, covering what is for us a big chunk of time at once. This thesis is all the more conceivable, because the present seems even for us of variable breadth.
- If God can thus overview human lifetimes or all of history or eternity in one grand 'moment', then He is always with regard to

such stretch of time effectively in a position of hindsight, i.e. He can see our volitions without affecting them. Within the grand moment accessible to Him, all events are quasi-simultaneous, as if He could mentally travel instantaneously from its beginning to its end and back at will. Thus, what appears to us as paradoxical foresight would simply to him constitute hindsight.

- Note additionally that omniscience does not only mean the ability to know across time, but more broadly to know all events everywhere, as well as all timeless events (abstracts). Seeing events many places at once could be viewed as almost as problematic as seeing events in many times at once. Yet, just as human perception can evidently overview a considerable amount of space, so by extension it is conceivable that God can perceive all space.
- I think that a lot of the conceptual difficulty many have with the idea of God can be dissolved if we view God as positioned proximately and parallel to and at least coextensive with (and probably much greater than) the natural world we live in. By that I mean that the view of God as suspended far away from it all causes conceptual difficulty in relating Him to the natural world. But if we rather understand God as hidden behind (or underneath or above or next to) the natural world, separated from it only by

the veil of our own blindness to Him, then He becomes more conceivable[174].

- To modernize these ideas with reference to Relativity Theory, we could speculate that God (as regards the world we inhabit, at least) resides ***at the center (or better, throughout the inside and perhaps also beyond) of the four-dimensional space-time 'sphere' (whose 'surface' is our material world)***. In this way, God would always be *equidistant* from (or better, contiguous with) all places and times, all points in this world. He would both transcend space and time, and be adjacent to (or even also immanent in) it. Perhaps this describes what mystics and deep meditators refer to as the "eternal present". (Note also that Albert Einstein's arguments refer to the immanent *material* world and the maximum velocity of light signals in it: he does not consider or deny that *consciousness* may transcend matter, nor that its scope might be instantaneous.)[175]

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174 The Buddhist idea of an "original ground of being" (experienced in deep meditation) from which phenomenal existences appear to spring, is a useful image in this context. Another image we can use is the Kantian idea of a Noumenon underlying the Phenomenon.

175 In this spherical perspective, we can conceive of Creation as timeless, and thus perhaps come to an agreement with Stephen Hawking. Creation would refer to the interface or transition between God (the spiritual core) and the material universe (the outer crust). Tangentially, within the four-

The above comments are not intended as exhaustive. See also, concerning the issue of God and causality, my comments in preceding chapters as well as in *Buddhist Illogic* (2002) and *The Logic of Causation* (1999, 2003).

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dimensional surface, there would be no spatial or temporal beginning; but along the radius of the sphere, the surface has a beginning.

3. Analyzing Omniscience and Omnipotence

In *Judaic Logic*[176], I expressed some misgiving concerning the consistency of the concept of omniscience. The following is an attempt to analyze the issue further.

The form (a) "I know that (I know nothing)" is inconsistent, since it implies "I know something" and "I know nothing" (i.e. "I do not know anything").

The following forms are, however, consistent: (b) I do not know that (I know nothing); (c) I know that (I know something); (d) I do not know that (I know something).

Strictly speaking, the paradox in (a) yields the conclusion (b), rather than (c), i.e. it does not exclude (d) at the outset. Unless we regard "I know nothing" as inherently paradoxical too, in which case "I know something" is implied: I think this is justified by reflection, i.e. once "I know nothing" is affirmed, we can classify it as a claim to knowledge, and thus reject it as implicitly inconsistent. Another way to the same result is to say that the "I do not know..." forms, (b) and (d), are implicitly claims to

176 P. 206.

knowledge, about the state of one's knowledge or ignorance, so that they imply (c).

Self-consciousness, even of one's ignorance, implies consciousness, and therefore knowledge. Or simply put, (c) is logically true of all self-conscious beings (i.e. humans and God, at least - perhaps some higher animals too). However, *we* cannot claim (c) true for seemingly merely conscious beings, we can only say for them "they know something".

The form of omniscience is (e) "I know that (I know everything)". The simpler form "I know everything" implies the reflexive, because if you know everything, then you must also know that fact. This is self-consistent, and therefore claimable for God. The form (f) "I do not know that (I know everything)" is *not* self-consistent, since it both implies "I do not know something" and *allows for* "I know everything".

Similarly, (g) "I know that (I do not know everything)" is self-consistent, as is the prior form "I do not know everything", and this is the situation for humans and perhaps some higher animals (in both cases) and merely conscious animals (in the non-reflexive case). The form (h) " I do not know that (I do not know everything)" implies both "I do not know something" and "I do not know everything", the former of which implies the latter of which: there is no inconsistency.

The difficulty in the concept of omniscience is not deductive, but inductive. Granting you know everything, then of course you know that you know everything. But

it is also conceivable that you have arrived at total knowledge gradually, by inductive processes, in which case, how would you know for sure that you know everything? And if the latter *possibility* exists, then whoever is apparently in a state of total knowledge (even by non-inductive means) is also a bit in doubt about it. That is, in practice, "I know everything" does not imply "I know that (I know everything)", or more precisely, even granting *the fact* that so and so knows everything, it does not follow that so and so *knows it* for a fact. That is, ***omniscience does not necessarily include the reflexive knowledge of one's omniscience***. In a sense, this result looks paradoxical, but in a way it confirms my general suspicion towards self-inclusive classes.

There is also to consider the conceptual compatibility between the Divine attributes of omniscience and freewill. Theologians have considered the compatibility of God's omniscience and *Man's* freewill, though in my view not satisfactorily; that is, those who have sought reconciliation have not so far as I know really succeeded - it was rationalization rather than true resolution (I attempt a more convincing argument above). But have they at all asked how *God* could have both freewill and omniscience? If God knows everything, including in advance what He will do, how can He be said to freely choose what He does? I think my attempted answer to the first question (in the preceding section) can also be applied to the second. For God, all of time is one

moment, so there is no before or after, and all knowing and doing are effectively simultaneous.

With regard to logical issues in the concept of Omnipotence, the following should be added. Omnipotence cannot be consistently defined in an unlimited manner, as literally the power to do anything whatsoever. We must rather say: God can do anything do-able in principle.

What distinguishes Him from all other entities is that whereas we finite beings can only do *some* (indeed, very few) of the things that are in the realm of the possible, God can do *all* that can conceivably be done. What He cannot conceivably do is *illogical* things like "creating Himself", or "creating things that are both A and non-A, or neither A nor non-A", or "annulling His own omnipotence", or "annulling the factuality of past facts". We might presumably add to this list the impossibility of His self-destructing (which would contradict His eternity), or of destroying His other defining characteristics. Moreover, I would personally — perhaps because I am a Jew (I say this so as not to offend the sensibilities of Christians, Hindus and others) — consider God incapable of incarnating, i.e. concentrating His being in a finite body, while remaining infinite.

It is not however inconceivable that God would eventually annul, circumscribe or reverse natural laws that are logically (as far as we can tell) replaceable. Here a distinction has to be drawn between natural modality and logical modality (see my work *Future Logic*, in this

regard). In this context, local and temporary "miracles", as are described in the Bible (e.g. the parting of the Red Sea) or other religious books, are quite conceivable – as punctual exceptions to natural law. Natural laws that are not logical laws may well be conditional upon the non-interference of God – this concept would in no way diminish their effective status as laws. Notwithstanding, it must be remembered that many such laws are logically interrelated to others, so that they might not be by-passed in isolation, but God would have to make multiple or systemic changes to produce a desired effect.

> But we do not need to consider God's every interference in the world as an abrogation of natural law. God might well have reserved for Himself a role as a powerful player *within* Nature. This remark can be understood, if we consider the analogy of human will (or, more generally, animal will). The latter is conceived by us as able to overpower the natural (i.e. deterministic) course of event; furthermore, one human's will may be more powerful than another's. Humans (and other animals) are nevertheless considered as part of Nature, in a broader sense. We can similarly, by extension, on a larger scale and at deeper levels, regard God's providence. To refer again to Biblical examples: He may have split the waters of the sea as we would make waves in our bathtub; He may have influenced Pharaoh's

> decisions as we would suggest things to weaker minds.
>
> If we limit our concept of Nature to deterministic events, then even human and animal will, let alone God's will, must be classified as unnatural. But if we understand the concept of Nature as covering *whatever happens to occur*, then not even God's eventual ad hoc interference in the ordinary course of events (deterministic or of lesser volitions) is unnatural.

Thus, to conclude, God's omnipotence cannot be conceived anarchically. God's will, in contrast to ours, is undetermined by "external" or "internal" forces and influences. But the concept remains, as for the other defining attributes, subject to consistency and other rational and empirical checks, i.e. to the laws of logic.

4. Harmonizing Justice and Mercy

Just as God's existence cannot be proved (or disproved), so also His attributes cannot definitively be proved (or disproved). If an attribute could be proved, that to which it is attributed would of necessity also be proved. (If all attributes could be disproved, there would be no subject left.) We may however admit as conceivable attributes that have been found internally coherent and consistent with all known facts and postulates to date. (Conversely, we may reject an attribute as being incoherently conceived or as incompatible with another, more significant principle, or again as empirically doubtful.)

Among the many theological concepts that need sorting out are those of justice and mercy[177]. Justice and Mercy: what is their border and what is their relationship?

Mercy is by definition injustice – an acceptable form of injustice, said to temper justice, render it more humane and limit its excesses. But many of the things we call

177 This essay was written in 1997, save for some minor editing today. Reading it now, a few years later, I find it unnecessarily aggressive in tone. I was obviously angry for personal reasons at the time of its writing. Nevertheless, I see no point in toning it down today.

mercy are in fact justice. Often when we ask (or pray) for mercy, we are merely asking not to be subjected to injustice, i.e. to undeserved suffering or deprivation of well-being.

Justice is giving a person his due, either rewarding his virtues or punishing his vices. Asking (or praying) for either of these things is strictly-speaking not a request for mercy, but a demand for justice.

So, what is mercy? A greater reward than that due (i.e. a gift) or a lesser punishment than that due (i.e. partly or wholly forgiving or healing after punishing). In the positive case, no real harm done – provided the due rewards of others are not diminished thereby. In the negative case, no real harm done – provided there were no victims to the crime.

An excess of mercy would be injustice. Insufficient punishment of a criminal is an injustice to victim(s) of the crime. Dishing out gifts without regard to who deserves what implies an unjust system.

But in any case, this initial view of moral law is incomplete. Retribution of crime is a very imperfect form of justice. True justice is not mere punishment of criminals after the vile deed is done, but *prevention* of the crime. Our indignation toward God or a social/political/judicial system stems not merely from the fact that criminals often remain unpunished and their victims unavenged, but from the fact that the crime was at all allowed to be perpetrated when it could have been inhibited. In the case of the fallible and ignorant human

protectors of justice, this is sometimes (though not always) inevitable, so they can be excused. But in the case of God, who is all-knowing and all-powerful, this is a source of great distress and doubt to those who love justice.

There are, we usually say, two kinds of crime: those with victims and those without. The latter include crimes whose victim is the criminal himself (they are his own problem), or eventually crimes against God (who, being essentially immune to harm, and in any case quite capable of defending His own interests, need not deeply concern us here). With regard to crimes with victims, our concern is with humans or animals wrongfully hurt in some way. The harm may be direct/personal (physical and/or mental – or in relation to relatives or property, which ultimately signify mental and/or physical harm to self) or indirect/impersonal (on the environment or on society – but these too ultimately signify an impact on people or animals).

A truly just world system would require God's prevention of all crime with innocent victims, at least – which He does not in fact do, judging by all empirical evidence, which is why many people honestly doubt His justice or His existence. To say (as some people do) that the failure to prevent undeserved harm of innocents is mercy towards the criminals, giving them a chance to repent, is a very unsatisfying response. It doesn't sound so nice when you consider that it was 'unmerciful' (i.e. *unjust*) to the victims: they were given no chance.

Perhaps, then, if not in a context of prevention, the concept of mercy has some place in the context of *ex post facto* non-retribution.

Avenging the victims of crime seems like a rather useless, emotional response – too late, if the victim is irreversibly harmed (maimed, killed, etc.). If the victim were not irreversibly harmed, his restoration and compensation would seem the most important thing, preferably at the expense of the criminal. But we know that vengeance also to some degree serves preventive purpose: discouraging similar acts by other potential criminals (raising the eventual price of crime for them) or educating actual criminals (so they hopefully do not repeat their misdeeds). To be 'merciful' to actual criminals with victims is therefore not merely to abstain from a useless emotional response, but to participate in eventual repetitions, of similar crimes by the same criminal or others like him.

It must be stressed that taking into account extenuating circumstances is not an act of mercy, but definitely an act of justice. Not to take into account the full context in formulating a judgment is stupidity and injustice. Perhaps the concept of mercy was constructed only to combat imperfectly constructed judicial systems, incapable of distinguishing between nuances of motive and forces. The law says so and so without making distinctions and is to be applied blindly without variation – therefore, 'mercy', an apparently 'irrational' exception to the law, is necessary! It would not be necessary if the

law were more precisely and realistically formulated. Thusly, as well for allegedly Divine law systems as for admittedly human law systems. If the system and those who apply it are narrow-minded and inhumane, of course you need 'mercy' – but otherwise, not.

Another way the concept of mercy is used is in wish or prayer. We hope that the 'powers that be' (Divine or human) will indeed give us our due, rewarding our good efforts or preventing or punishing our enemies' evil deeds, even though this is not always the case in this imperfect world. Such calls to mercy are a form of *realpolitik* – they are not really calls for injustice, but calls for justice clothed in humble words designed to avoid a more fundamental and explicit criticism the failure of true justice of the powers-that-be. Again, if absolute justice were instituted, there would be no need for such appeals to 'mercy'; the right would be automatically done. Well, human justice is inevitably deficient: even with the best of intention and will, people are neither omniscient nor infallible, so uncertainty and even error are inevitable, and in such context 'mercy' is perhaps a useful concept.

But in the case of God, what excuses can we give? How can we justify for Him the imperfection of the world? We try to do so with reference to freewill – justice presupposes responsibility, which presupposes freedom of choice. But this argument is not fully convincing, for we can dig deeper and say: if the world *couldn't* be made just, why was it made *at all*? Or if it had to be made, why

not a world of universal and unvarying bliss – who ever said that freewill was required? For this question there seems to be no answer, and it is the ultimate basis of the complaint of theodicy. The counter-claims of ultimate justice – causes of seemingly unjust reward or punishment invisible to humans, balancing of accounts later or in a reincarnation or in an afterlife – seem lame too. If justice is invisible it is also unjust, and justice later is too late since for the intervening time injustice is allowed to exist. So we are left perplex.

Even when we see two equally good men unequally treated, one rewarded as he deserves and the other given better than he deserves, or two equally bad men unequally mistreated, our sense of justice is piqued. All the more so when the one with more free gifts is less deserving than the one with less free gifts. And all the more so still when the bad is not only not punished but given gifts and the good not only not rewarded but mistreated. For then all effort toward the good and away from the bad is devaluated and rendered vain. If there is no logic in the system of payment, then what incentives have we? Certainly, the resultant effect is not to marvel at the love and mercy of the payer, but rather at the injustice and lack of love that such chaotic distribution implies.

Perhaps then we should ask – what is good and what is bad? Perhaps it is our misconception of these things that gives us a false sense that injustice roams the world. The way to answer that is to turn the question around, and

ask: should we construct our concepts of good and bad empirically, by simply judging as good all actions which seem to result in rewards and bad all actions which seem to result in punishment (the 'market' value of good or bad)? Such a pragmatic approach (which some people find convenient, until they bear the brunt of it themselves) is surely contrary to humanity's intuitions. For in such case, criminals become defenders of justice (*justiciers*) and victimization should always be a source of rejoicing for us. This is the antithesis of morality, which is based on human compassion towards those who suffer indignities and indignation towards those who commit indecencies. These intuitions must be respected and supported, against all claims of religion or ideology or special interests.

Some say there are no innocent victims – implying (for example) that even those who perished in the Holocaust must have been guilty of some *commensurate* crime, in a previous lifetime if not in the current one. Some say there are no culprits – for instance, many Buddhists apparently hold this view, with reference to karmic law. These propositions are two sides of the same coin. As soon as you have a doctrine of perfect justice, divine or natural, you stumble into this pitfall. Only by admitting the imperfection of justice in the world can we become sensitive to the undeserved sufferings of people (others' or one's own).

5. The Formlessness of God

Finally, I would like to share an insight I recently had at the synagogue, an aspect of "emptiness" not previously discussed by me. The God of Judaism, and more broadly of similarly monotheistic religions, is absolutely ***formless*** – which means, devoid of any shape or form, devoid of any sensible or phenomenal characteristics. (More precisely, this God is conceived as *having* no phenomenal characters, but as quite able to *produce* them.) How then is He to be at all known by us mere mortals?

Standing in worship, I gratefully realize that I am not projecting any *image* of God, since I have none, none having been taught or allowed to me. The God that I (as a Jew) celebrate is formless, very similar in that respect to the "emptiness" presumed by Buddhists to be the root and essence of all existence. Observing myself thinking of God, I note an effort of "intuition," an intention to see through the material and mental world of appearance and to some degree apprehend the formless Existent that I assume to be present.

Thus, "knowledge" of God by us is based on an analogy or a generalization, from the intuition of one's own self. By abstraction from my own self, I can conceive of other

people's selves and of the Self of God. If we attribute to God powers like cognition, volition and valuation and affection, in their extreme forms (as omniscience, omnipotence, and perfect justice and mercy, utter kindness), it is because we have inner consciousness of such powers (in miniature degrees) in ourselves. Our philosophical concept of God is not a conceptual construction derived from experience of Nature, i.e. based on *phenomenal* appearances and *causation*, but a product of introspection.

Some might argue that just as our soul has or inhabits a body, God may well inhabit the world (pantheism, animism) or be incarnated in it in human form (Hinduism, some branches of Buddhism, and Christianity have this belief) or be symbolized and represented by inanimate images, i.e. statues or drawings (this is called idolatry by Judaism, Islam and some branches of Christianity).

According to those who reject it, the fault of ***idolatry*** (the word is etymologically rooted in Gr. *eidos* = form) is to ignore the inner source of concepts of divinity, and to misdirect people's attention onto physical or mental images, i.e. on phenomenal characters. Just as it is foolish to identify oneself with one's body or imaginations, so God cannot be equated to or known through a form. Granting theism (which of course remains open to debate), the psychological advantage of monotheism is precisely its focus on the formless.

With regard to the concept of ***incarnation*** of God, which is central to many developed religions, I personally find it unconscionable: I do not see how the immensity of God can simultaneously *be* (and not merely *project* into the world) someone or something so small as a person or an inanimate form. Consider too our tiny size relative to that of the universe; and speculate on the possible infinitesimal size of our universe relative to the infinity of its Creator. Conversely, the apotheosis or deification of a human or animal is in my view unthinkable: a part cannot become the whole. But of course, that may just be my Jewish education; each one is free to think as they see fit. I am not interested in promoting religious intolerance or conflicts, but only seek to clarify concepts and debate issues as a philosopher.

What I want to point out here is that the analogy between God and human soul is commonly regarded as having limits. For whereas most theists (though not necessarily animists or pantheists) consider God as creating the material and mental natural world, most believers in a human soul do not consider that soul as *creating* the body associated with it. The soul may be assumed an outcome of the body (as in naturalism, where soul cannot exist without body) and/or an inhabitant of it (as in certain religions, where soul may leave body), with some degree of control over the body and influence from the body, but it is not assumed to produce the body. On the other hand, one of the main reasons that God is posited, in the monotheistic world-view (rightly or wrongly), is to

fulfill the role of first cause and prime mover of the natural world.

All such discussions are of course considered irrelevant by naturalists, many Buddhists, and other atheists. But rather than come to some doctrinaire conclusion on topics so speculative, I think the important thing is to keep an open mind and focus on comprehending all aspects, nuances and options.

ILLUSTRATIONS

Figure 1. Existence, appearance, and reality.

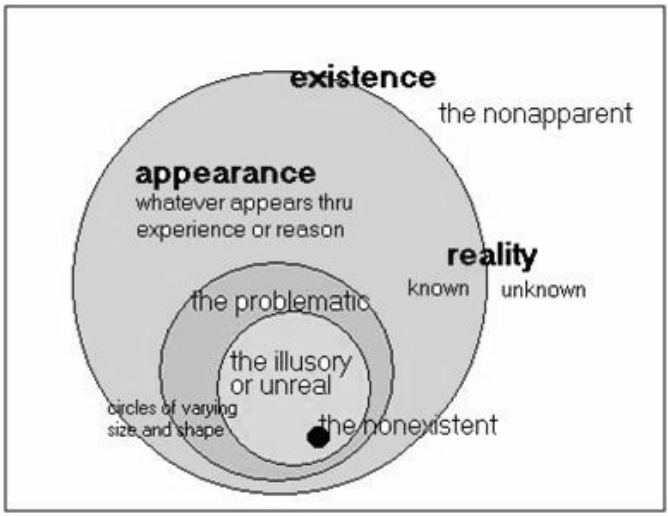


Figure 2. Assumed material, mental and spiritual domains.

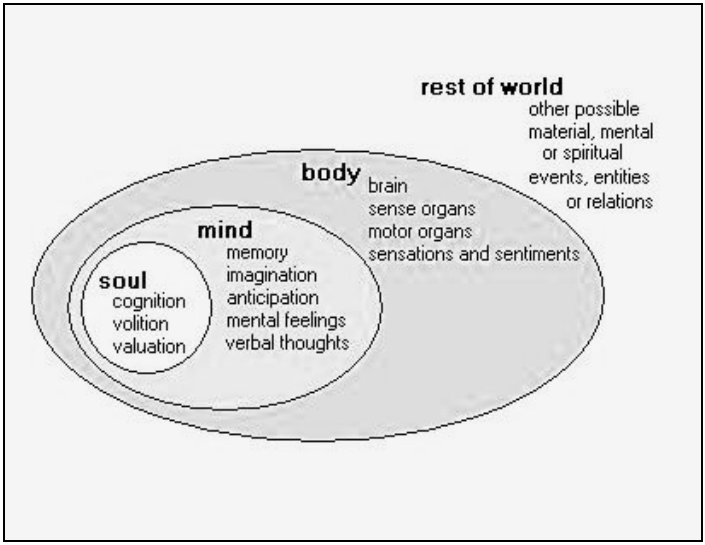


Figure 3. A classification of appearances.

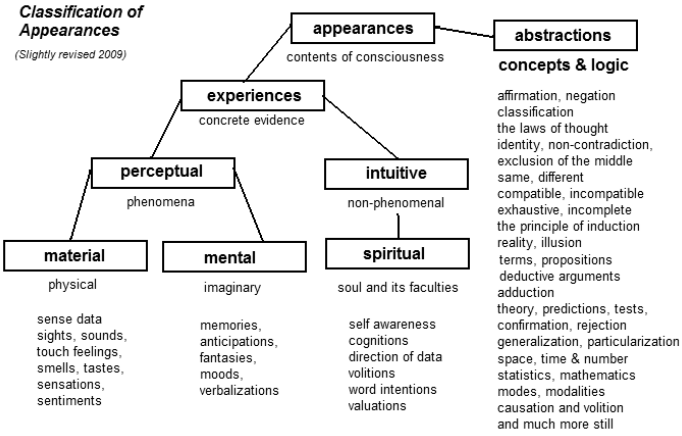


Figure 4. Three types of continuity.

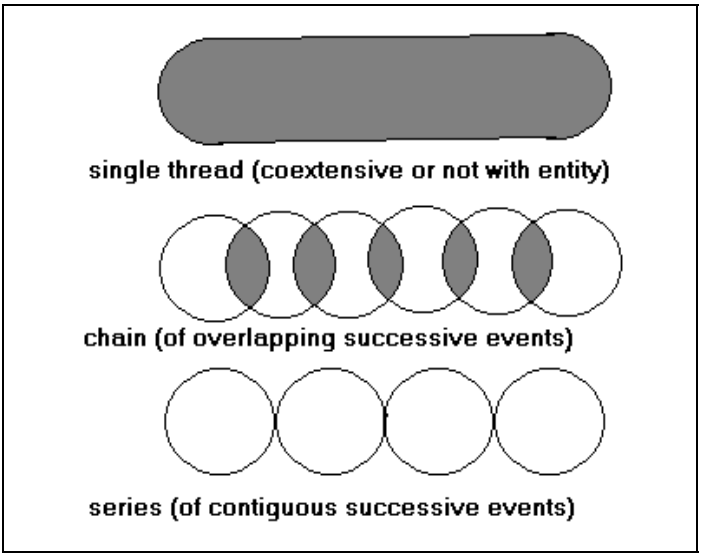
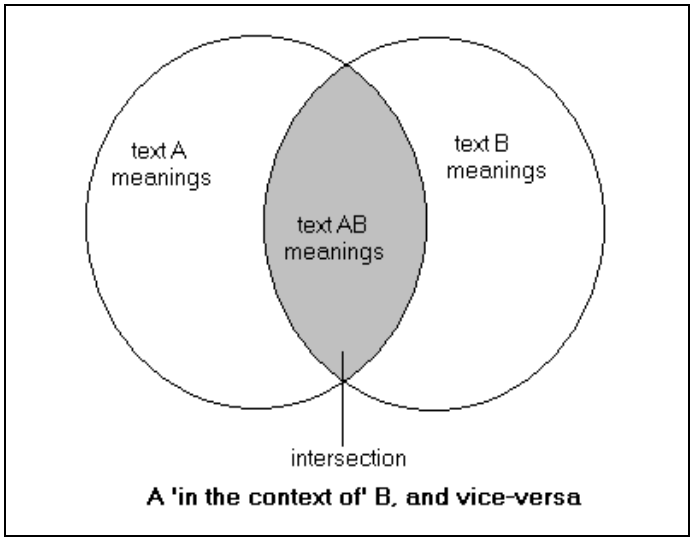


Figure 5. Contextual meaning.



APPENDICES AND REFERENCES

Appendix 1: Using Meditation

In the present essay[178], my purpose is to introduce the reader to what is meant by 'meditation' and how the practice of such introspection affects one's philosophical positions. I illustrate below how phenomenological insights may be generated by means of observations and reflections during or after meditation. The conversations below are not intended as lessons in meditation. They were not made in a single sitting, but over many sessions[179]. Of course, the result of my own meditations is not merely what is written below, but the whole of the present book. Many of the issues treated in it were really raised, clarified and resolved by such meditations.

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178 These reflections were written in 1998, and recently edited a bit for this publication.

179 For the record, my own first practice of meditation was in 1979, *zazen* with a Japanese monk known as Roshi who had a center on the Mount of Olives in Jerusalem. I remember once so exasperating this gentle teacher with my fidgeting during a sitting that he lost his cool and shouted at me: "DON'TA MOVE!!!" Over the next few years, I was taught some excellent yoga meditation techniques, including the lotus pose, *pratyahara* (accepting pain and other disturbances), inner silence and breath awareness, but all told practiced little. It is only in the last few years that my interest has intensified, and I practice a sort of Zen meditation daily. I cannot honestly claim to be very advanced!

Meditation is to a great many people something unknown or that smacks of mysticism. But, as the sample discourse below demonstrates, what goes on during meditation – in this case, the technique of '**breath-awareness**' – is very down to earth and accessible to all. One is not turned into a zombie, but remains quite conscious and even active. Meditation for philosophical purposes obviously involves curiosity, asking questions, seeking answers. Notice the kind of detail one looks out for, and the kind of information one can draw from it. An effort is required, but the emphasis is on observation and memory, rather than on conversation (which can be done later).

> I sometimes find it hard at first to get focused on the breath. So to try and generate and hold my attention, I may ask myself what my purpose and belief in doing it might be. But a mercantile attitude is counterproductive. One may think, to begin with, "I want to now meditate on my breathing," so as to set oneself on course and avoid mental dispersion, but one should not hang on to this thought thereafter.
>
> In general, meditation teachers recommend that we avoid using meditation as a means to an end rather than an end in itself. We are advised to go 'above' a mere pursuit of psychic rest, calm, serenity (which is what I often seem content with nowadays), or as here of philosophical knowledge (which can get nervous and verbose), or even of the greater ambitions of 'illumination' (the

promise of oriental traditions that meditation leads to a radical review of reality).

This is also true with reference to a particular object of meditation, such as the breath. If I view breath-awareness merely as a technique (akin to a meaningless *mantra* or *mandala*) that will hopefully propel me into concentration and *samadhi*, then my interest in the breath itself is artificial. I therefore try to think of the breath as something special, on a biological and possibly on a metaphysical level (yogis regard it as in itself revealing as to the 'nature of reality').

The secret of success in breath-awareness meditation is to *enjoy* it. This is not meant in the sense of taking pleasure in it, but in the sense of having aroused one's interest in it. Then one is able to patiently watch one's breath *in all its details*, and persevere in this without especial effort for more than a brief while.

Breath-awareness is primarily a *tactile* meditation, in that I feel my body parts moving or the impact of air in different parts of my nostrils. Of course, one may experience other sensations, such as smells or sounds coming from the environment, or be subject to all sorts of imaginations and thoughts, but as one's concentration on the breath increases all these tend to fall away. Also, the end result of breath-awareness is more mental than physical.

There is, at first or sometimes, an allied sound component, in that I *hear* the sound of air passing

through my nose; but as my state-of-mind gets to be calmer, my breath gets to be less and less noisy, till I cannot rely on its sound at all to remain aware of it, but must concentrate on the touch and motion aspects purely.

An error in such meditation is to accompany each in-breath or out-breath with an *internal sound* (i.e. a sound in the head, a mental sound). It is *as if* the will needs to 'play a tune' or 'sing a song' for the breath to happen. This is evidence that you are not observing natural breath, but are interfering with your will, and you do so in such case by mimicking the sound of breath, as a means of producing breath.

I currently meditate with my eyes closed, to limit sensory inputs and get more inward. But if I consider the experience with eyes open, certain visual factors must be added to the above. Primarily, I *see* the movement of my body with the breath (rise and fall of my chest).

Also, I *visualize* the breath going in and out of my nose[180] and/or my abdomen. Such mental seeing or imaging is perhaps less strong with eyes open than with eyes closed. But in any case it constitutes the equivalent in the realm

180 It is worth recording that there are at least two perspectives for visualizing breath travel in the nostrils. The rougher way consists in 'seeing' the breath from the point of view of an observer placed slightly *on the side*. As my meditation progresses, I am instead 'looking' *down the tubes* of my nose, as if I am placed at their confluence (the "third eye" location?).

of the visual, to the inner sound mentioned above. This too is an error of meditation, in that the will is interfering with the phenomenon, artificially adding things to it.

However, upon reflection, I must temper the above remarks on errors of meditation.

First, to say that such internally generated sounds and sights can themselves be taken as *objects of meditation*. If one can stop them dead by willpower, so well and good: the meditation is made easier by being limited to natural objects. Often this is not feasible, and one must let the mind gradually calm down: in such case, creations of the will are to be accepted as a kind of natural object among others, and observed without being perturbed, without 'fighting' them.

Secondly, it must be noted that such inner auditory and visual appearances may not-be the work of a perverse will. They may simply be a biological necessity, having to do with the *correlation between sense-modalities*. To the tactile sensations of breathing, in the absence of corresponding physical sounds one needs mental sound substitutes, and in the absence of corresponding physical sights one needs mental image substitutes. Such equivalences may be a natural product, a sort of ongoing 'dictionary' translating experiences in the one sense-modality into experiences in the other.

But I must add that in my experience this parallelism evaporates after awhile (in some cases it is absent from the start, in some cases it comes and goes); so it cannot be an absolute need, but rather simply a tendency; i.e. we

must admit that pure tactile experiences are possible, without visual-auditory accompaniments whether physical or mental.

Also, the impression that the will is involved is often, though admittedly not always, quite marked; so we must not generalize either way, i.e. mental events are sometimes willed and sometimes not.

Third, it should be noted that some yogic meditations involve visualization or auditory imagination[181] as positive *techniques*, aids to meditation. Some such techniques may be inventions of charlatans, but I can claim personal experience of effective methods (e.g. in *ajapa jap*[182], imagining 'psychic' breath going from the *muladhara* energy center to that of *agya* and back, and sounding *so* and *hum* as it does so). It follows that interference of the will cannot be regarded as automatically faulty, but may be used constructively.

In this context we must note that at least some Buddhists seem to regard the willed/mental and natural/external as

181 I would like to propose the term "auditorization" for imagination of sounds (just as "visualization" is used for imagination of sights).

182 I am referring here to Dynamic Meditation (and more advanced Kriya Yoga techniques) as taught in the Scandinavian Yoga and Meditation School by Swami Janakananda Saraswati and his disciples Swami Nityabodhananda (my first wife, Nina) and Hari Prem. For information, I am just an amateur occasional practitioner of these techniques, having in the past attended a few courses with those teachers.

ultimately one and the same. Their difference is an illusion; everything is ultimately mental or everything is ultimately physical, the distinction becomes meaningless. This may be an experience at deeper intensities of meditation or it may be a theory that seemed fitting to certain metaphysicians. In any case, it calls upon us to temper our reaction to the interference of will in meditation.

When I sit in meditation, I find it is best to 'gradually become aware of the breath' (as my teachers have taught me). For if I turn my attention to my breathing too suddenly, I produce a stir in it, it loses its natural regularity somewhat and becomes uneven. It is as if, almost inevitably, when we call upon our cognitive power, we awaken uncalled-for volitions. I infer that turning one's attention is a very fine act of volition; if done heavy-handedly, the volition is too strong and has an impact on the object[183]. That is a defeat of the starting intention, to concentrate on the breath.

We must therefore learn, by trial and error, to be more delicate, and will just enough for pure cognition and not so much as to affect its object. The modification of the object may consist in addition or suppression or a combination of both (alteration). The infusion of imaginary sounds or sights are examples. A more

183 It is a bit like the problem raised by Heisenberg with reference to physical observations.

extreme example is *thought* about the breath, which may totally erase all perceptual awareness of the breath and carry us into some long discourse involving verbal and dream elements, which may after awhile have nothing to do with the original object of meditation (our breathing here and now).

This brings us into the complexities of conflict between thought and meditation. Ideally, meditation is free of the interference of thought; it is empty-minded, serene observation. In practice, one has often to contend with all sorts of mental disturbances, and the trick then is to somehow get into a position of observer of these ongoing thoughts. Perhaps the way into the observer's role is not so much to place oneself *above*, but to reserve a little place (a modest fraction of self) *adjacent* to the turbulent events. A commanding position is not easy to get into; all we need is to gain a foothold, to obtain a small observation platform. One should not fight the thinking or hope to smother the thoughts, but accept them and try only to at the same time be accepted by them as a curious spectator. After a while, thought may fade away, as if shy to be seen.

The above needs some further clarifications. The interference of will occurs especially when I try using the breath-counting technique proposed by certain Buddhists. This technique is useful, to force your attention on the breath immediately, after which you can hold it there more easily. It happens that such counting becomes divorced from the awareness of breath, but that

is not the main problem. Rather, the disadvantage of such counting is that one usually (with very rare exception) gets involved in control of the breath.

a) To make the breath *more noticeable*, one intensifies it or exaggerates it.
b) There is also a tendency to *lengthen* one's breath, so as to make it healthier and calmer.
c) To fit it into one's counting, one tries to make it *more regular*, i.e. to make each breath as a whole equal in length to the preceding (even if the in and out breaths are of unequal lengths).
d) These distortions in tactile mode are exacerbated by inner sounds and sights that parallel the willed breath, helping to form it and direct it.

One must also avoid opposite reactions to these distortions, like trying to make one's breath more natural by making it *un*even! The goal is always to observe the breath as it is, in as much detail as possible. If the breath is unnoticeable, that *absence* is good enough to observe.

For these reasons, I have personally stopped using the breath-counting method (though I am of course free to use it occasionally if I feel like it[184]). I find it wiser to just let my mind calm down by itself, and then gradually become aware of my breath. This does not always work,

184 There may well be times when we are simply unable to calm our thoughts without use of such a technique. Just because I personally at this time find it more intrusive than helpful does not allow me to discard it for all times.

it depends on my energetic state (how rested and well-fed I am, and so forth); but this dependence exists with the other method too. It seems illogical to me to disturb my mind in an attempt to calm it; it is like trying to stop turbulences in water or air by waving your arms about. Though sometimes, admittedly, jogging a bit improves one's walking.

What ultimately makes breath noticeable and natural is the increased concentration on it one eventually acquires. At first, one is 'distant' from one's breath; later, with skill, one is right there 'in the midst' of it. The sense of 'physical' distance between the observer and the observed is an expression of *mental* distance from one's meditation. As one's concentration on the breath increases, one feels oneself (the observer) to be placed in the nose or in the chest or solar plexus, where the breath (the observed) is being watched.

Watching carefully, one notices the differences between incoming and outgoing breaths. In my case (other people may differ), my in-breath seems usually somewhat rougher, louder and shorter than the out-breath. The former is more physical; the latter is more mental. Furthermore, one should note the differences in air intake or outflow between the two nostrils. In my case, these are partly due to a broken nose; but yoga teaches us that the use of our nostrils vary with the time of day, for instance.

Note well the above remarks are not intended as a guide to meditation. My own favorite guide is: Shunryu

Suzuki's ***Zen Mind, Beginner's Mind*** (NY and Tokyo: Weatherhill, 1973).

Appendix 2: Feelings of Emptiness

There is another sense of the term "emptiness" to consider, one not unrelated to the senses previously discussed. We all have some experience of *emotional* emptiness.

One of the most interesting and impressive contributions to psychology by Buddhism, in my view, is its emphasis on the *vague enervations* we commonly feel, such as discomfort, restlessness or doubt, as important motives of human action. Something seems to be wanting, missing, urging us to do something about it.

> These negative emotions, which I label feelings of emptiness, are a cause or expression of *samsaric* states of mind. This pejorative sense of "emptiness" is not to be confused with the contrary "emptiness" identified with *nirvana*. However, they may be related, in that the emotions in question may be essentially a sort of vertigo upon glimpsing the void.[185]

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185 These emotions are classified as forms of "suffering" (*dukkha*) and "delusion" (*moha*). According to Buddhist commentators, instead of floating with natural confidence on the "original ground" of consciousness as it appears, a sort panic occurs giving rise to efforts to establish more concrete

Most people often feel this "hole" inside themselves, an unpleasant inner vacuity or hunger, and pass much of their time desperately trying to shake it off, frantically looking for palliatives. At worst, they may feel like "a non-entity", devoid of personal identity. Different people (or a person at different times) may respond to this lack of identity, or moments of boredom, impatience, dissatisfaction or uncertainty, in different ways. (Other factors come into play, which determine just which way.)

> Many look for useless distractions, calling it "killing time"; others indulge in self-destructive activities. Some get the munchies; others smoke cigarettes, drink liquor or take drugs. Some watch TV; others talk a lot and say nothing; others still, prefer shopping or shoplifting. Some get angry, and pick a quarrel with their spouse or neighbors, just to have something to do, something to rant and rave about; others get into political violence or start a war. Some get melancholic, and complain of loneliness or unhappiness; others speak of failure, depression or anxiety. Some masturbate; others have sex with everyone; others rape someone. Some start worrying about their physical health; others go to a psychiatrist. Some become sports fanatics; others get entangled in

---

foundations. To achieve this end, we resort to sensory, sensual, sentimental or even sensational pursuits.

consuming psychological, philosophical, spiritual or religious pursuits. Some become workaholics; others sleep all day or try to sink into oblivion somehow. And so on.

As this partial and disorderly catalogue shows, everything we consider stupidity or sin, all the ills of our psyche and society, or most or many, could be attributed to this vague, often "subconsciously" experienced, negative emotion of emptiness and our urge to "cure" it however we can. We stir up desires, antipathies or anxieties, compulsions, obsessions or depression, in a bid to comprehend and smother this suffering of felt emptiness. We furnish our time with thoughts like: "I think I am falling in love" or "this guy really bugs me" or "what am I going to do about this or that?" or "I have to do (or not to do) so and so". It is all indeed "much ado about nothing".

If we generalize from many such momentary feelings, we may come to the conclusion that "life has no meaning". That, to quote William Shakespeare:

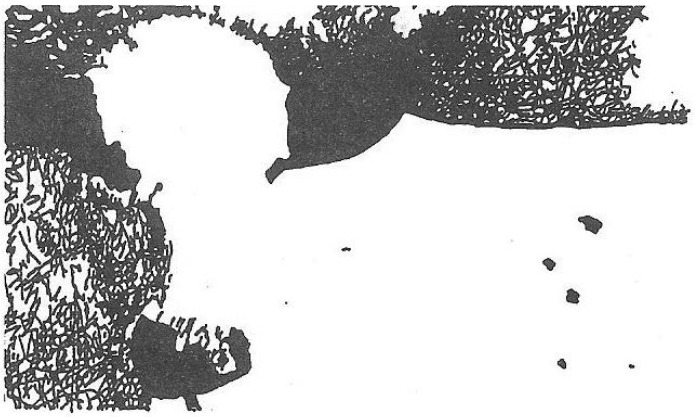
> *Life's but a walking shadow, a poor player*
> *That struts and frets his hour upon the stage*
> *And then is heard no more: it is a tale*
> *Told by an idiot, full of sound and fury,*
> *Signifying nothing.*
>
> Macbeth (act V, scene 5).

Of course, we can and often do also react more positively, and give our life more constructive meaning. I believe this becomes possible *once we are able to recognize this internal vacuum when we feel it*, and make sure we do not react to it in any of the negative ways we unconsciously tend to react. Once we understand that this feeling of emptiness cannot be overcome by such foolish means, we can begin to look for ways to enjoy life, through personal growth, healthy activities, helping others, learning, creativity, productiveness, and so forth.

Regular meditation is a good remedy. Sitting quietly for long periods daily makes it easier to become and remain aware of emotional emptiness when it appears. Putting such recurring bad feelings into perspective gradually frees us from them. They just seem fleeting, weak and irrelevant. Life then becomes a celebration of time: we profit from the little time we have in it to make something nice out of it.

Appendix 3: Mental Projection

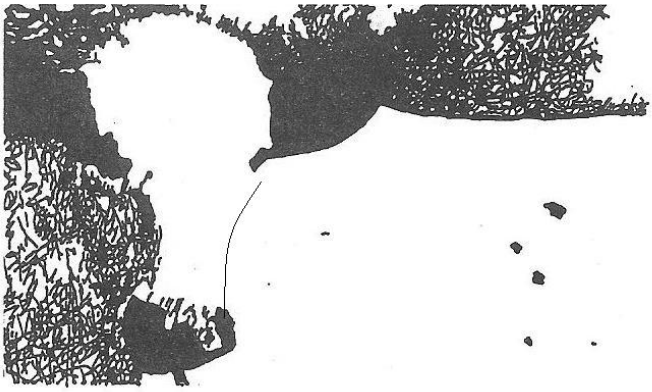
The following illustration is drawn from *Buddhism Plain and Simple* by Steve Hagen (London: Penguin, 1997), being there reprinted from *The Ape That Spoke* by John McCrone (UK: Macmillan, 1990).



MYSTERIOUS FIGURE

Now, Hagen (p. 28) asks us to look at this picture and try and see what it illustrates. At first sight, it may look to you like a reclining figure - it did to me. But it is in fact something else (as made clear overleaf). Hagen's point in showing this is that something may seem very mysterious till you "get it" – but once you *see it* for what it is, it becomes obvious. He keeps repeating this

"seeing" verb throughout his book, implying that enlightenment is like this – a sudden *seeing* of what was always there.



MYSTERIOUS FIGURE - REVEALED !

While I understand his point about enlightenment, and I assume this is the way it occurs, his interpretation of the mental process of recognizing the cow is highly debatable. It is not a mystical event of "seeing", but *a mental projection* of a dividing line that forms the face of the cow, as done in the above retouched illustration. Such projections, as I argue in the present volume, are crucial to our construction of knowledge from experience.

(2009)

About This Book

This volume comprises essays on phenomenology and related topics, written in the years 1990, 1997-8 and 2002-3 (and expanded 2004-5).

My interest in phenomenology dates from the very beginning of my interest in philosophy. I was to start with, like everyone else at first, a "naïve realist" – until on a winter's day in 1970-1, in a cheap flat in Montreal, when the full weight of the critique of that Lockean posture by Descartes, Hume and Kant struck me. Soon after, I realized that the answer to such doubts was simply that 'reality' and 'illusion' have a common ground – namely, that they both appear – and many things can be thought and said about things already on this level, that of 'appearance,' prior to any judgment as to whether that which has appeared is real or illusory. This insight has stayed with me ever since, protecting me against all sorts of silly philosophies. It was an important theme of my doctoral dissertation, Future Logic, many years later (in 1990).

In 1997-8, being unemployed, I followed various courses at Geneva University. Courses in philosophy, linguistics, psychology and astronomy. Some of the lecturers taught me new things; others caused indignation in me for the errors they passed on to their students. In either case, I

wrote more notes, and some of these have ended up as part of this book. Another stimulant for this book was my increased personal interest in meditation in the last few years. This revived a long dormant interest in Buddhism. Writing Judaic Logic (1995) caused my thinking on religious issues to mature greatly, so that I could no longer read any text without being vigorously critical. So in 2002, reading a text on the "logic" of Nagarjuna, I was naturally confident and strong enough to quickly and easily produce my Buddhist Illogic. Simultaneously, I wrote the main chapters of the present book, bringing my writing on phenomenological questions in line with my current thinking.

The patient reader will surely find some important philosophical insights in the present volume. One general recommendation, dear reader, read my footnotes – they are, in my way of writing, an integral part of the text!

> Much of my writing starts in the way of handwritten notes on scrap paper. A stray thought, a reflection while reading a book or after a verbal exchange with someone, is hastily committed to paper, knowing I will not remember it long. How many times have I lost what seemed like 'the answer to everything' because I took too long to put it in writing! The small slips pile up over the years, some apparently containing very important insights, others perhaps a mere word worth using one day. Once in a while, I will sort these notes into different folders, without regard

to their temporal sequence but with reference to their main subject-matter – "general logic," "causation," "phenomenology," or whatever. Occasionally, suddenly inspired or intent on discipline, I take up one or two of these folders, and start transcribing the notes into my computer. Of course, the original note is telegraphic in style, limited by the size of the piece of paper it was written on. The moment I transcribe a sentence, it grows. I naturally start developing the discussion, reviewing the initial thought more critically, expanding upon it. More notes are brought to bear. And thus an essay is born. When I have accumulated a set of essays, these in turn have to be harmonized before they make up a book. This task again stimulates an intellectual effort, further research, thinking a bit more about some topics, restructuring texts.

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Works by Avi Sion

Avi Sion is the author of several works on logic and philosophy: Future Logic (1990); Judaic Logic (1995); Buddhist Illogic (2002) ; Phenomenology (2003); The Logic of Causation (1999, 2003, 2010); Volition and Allied Causal Concepts (2004); Ruminations (2005); Meditations (2006); Logical and Spiritual Reflections (2008-9); A Fortiori Logic (2013). These works can be freely studied at: www.TheLogician.net.

ISBN 978-1495917592